Environmental Management Chapter

Environmental Management Chapter

INTRODUCTION

A city can determine its livability largely by the approach it takes in dealing with environmental problems caused by urbanization. These problems often arise from sources outside local control. Solutions require that local, regional, State, and federal governments work in coordination with residents and private industry. It is crucial to involve the public because government cannot, by itself, solve the problems that build up from the seemingly inconsequential actions of thousands of individuals.

Organization and Major Themes

This chapter defines the main method for putting the City's environmental policies into action. It contains four of the seven elements that California requires in general plans. These are Open Space, Conservation of Resources, Public Safety, and Noise.

The Open Space Element is composed of Goals, Policies, and Actions for acquiring, developing, using, and preserving open space over the long term. The main themes are using cost-effective ways of acquiring open space, developing a system of urban trails throughout Mountain View, and using the City's parks and other public spaces for activities that make people more aware of Mountain View's cultural richness.

The Conservation of Resources Element conveys City policy on air quality, water, solid waste, soil, wildlife and wildlife habitat, historic resources, and energy. It responds to the California environmental laws that have been passed since the 1970s, including the Clean Water Act, the Clean Air Act, the Integrated Solid Waste Management Act, and Title 24 of the State Building Code. The chapter identifies important natural resources in Mountain View, recognizes that they exist in limited quantities, and provides strategies for their preservation.

The Public Safety Element establishes Policies and Actions to protect Mountain View from hazards caused by earthquakes, floods, fires, toxic chemicals, and crime. It focuses on preventing hazardous circumstances from occurring and on adequate response to situations that do arise.

The Noise Element analyzes the current noise environment and presents Policies and Actions to control the source of noise, its path, and the way people receive it. The Element's goal is to protect people from noise intrusion. It includes a contour map identifying major noise sources and looks at stationary noise sources and the noise made by motor vehicles.

Accomplishments

Mountain View has succeeded in carrying out many of the environmental and safety Policies of the 1982 General Plan. Some of these accomplishments include:

- Acquisition of 17.5 acres of new public open space for two new neighborhood parks and three mini-parks, one of which is not yet developed.
- Transformation of a 544-acre landfill site, closed in 1980, into Shoreline Regional Recreation and Wildlife Preserve. Shoreline has since grown to 662 acres. It offers activities including jogging, bicycling, wind surfing, small boat sailing, bird watching, kite flying, golf, and environmental education.
- Institution of a curbside recycling program in 1987. The program, originally available to roughly 16,000 households, was expanded in 1991 to include every residence in the city. In its first three years, the program collected more than 5,400 tons of recyclable materials which would otherwise have been deposited in a landfill.
- Mountain View was a founding member of the Golden Triangle Task Force, which sought to reduce air pollution by reducing the length and number of commute trips.
- Production of enough energy to satisfy the needs of more than 2,000 average homes from Mountain View's enhanced methane gas recovery system associated with the former landfill. This system improves air quality and develops an alternate energy source.
- Reduction in use of drinking water by 15 percent between 1985 and 1990 through Mountain View's comprehensive Water Conservation Program. This

reduction is particularly significant considering that the city added more than 2,000 new homes and more than 3,000,000 square feet of offices, stores, and industry during the same five years.

- Creation of an Office of Emergency Services by the Fire Department to oversee Mountain View's emergency preparedness planning and a Hazardous Materials Division to manage the use and storage of hazardous materials safely.

- Installation of a computer-aided dispatch system that improved Fire Department response times. The Department enhanced emergency medical care by adding automatic heart defibrillators to all emergency vehicles.

- Construction of a series of sound walls between freeways and Mountain View's residential neighborhoods by State and County agencies. These sound walls redirect traffic noise and reduce noise levels on adjoining properties by about 10 decibels.

OPEN SPACE

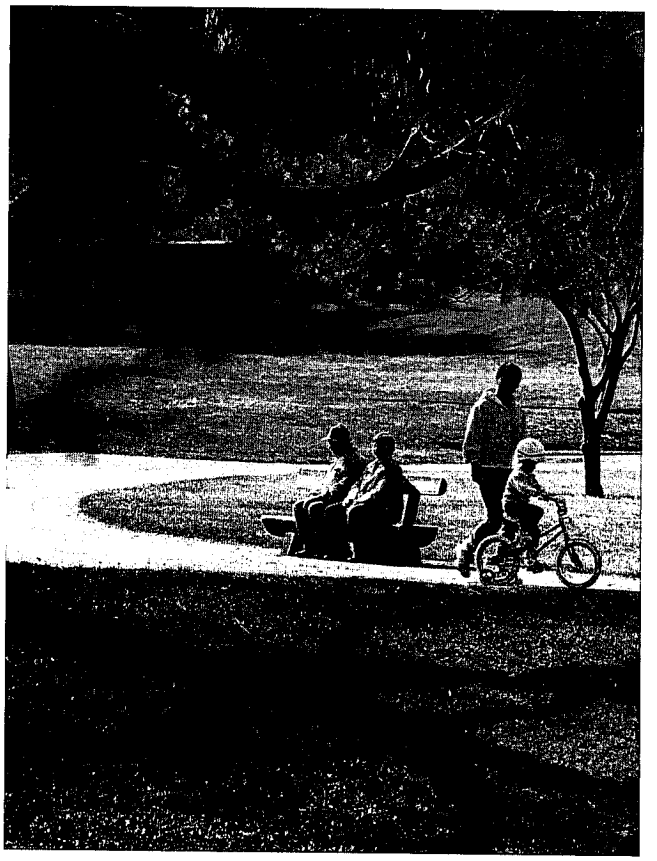
"The preservation of open space land is necessary not only for the maintenance of the economy of the state, but also for the assurance of the continued availability of the land for the production of food and fiber, for the enjoyment of scenic beauty, for recreation, and for use of natural resources."

California Government Code Section 65561(a).

Mountain View's parks and other open spaces are among its most visible and important public facilities. They provide recreation areas and spaces for people to relax and escape from urban pressures. As of 1990, the City had 768 acres of park land divided among one community garden, seven mini-parks, nine neighborhood parks, two district parks, and one regional park.

Mountain View's community garden sits on an acre of land in the Stierlin district. Its 36 garden plots are leased to Mountain View residents for one year at a time. The garden costs the City almost nothing in maintenance costs and is so popular that it has a waiting list.

The City's seven mini-parks are Fairmont, Jackson, Klein, San Veron, Thaddeus, Varsity, and Blackfield, which is not yet developed. These parks are usually an acre or less, and are intended to serve people within walking distance of the site. Mini-parks are generally designed for a specific population, such as senior citizens or children.



Cuesta Park—one of two district parks.

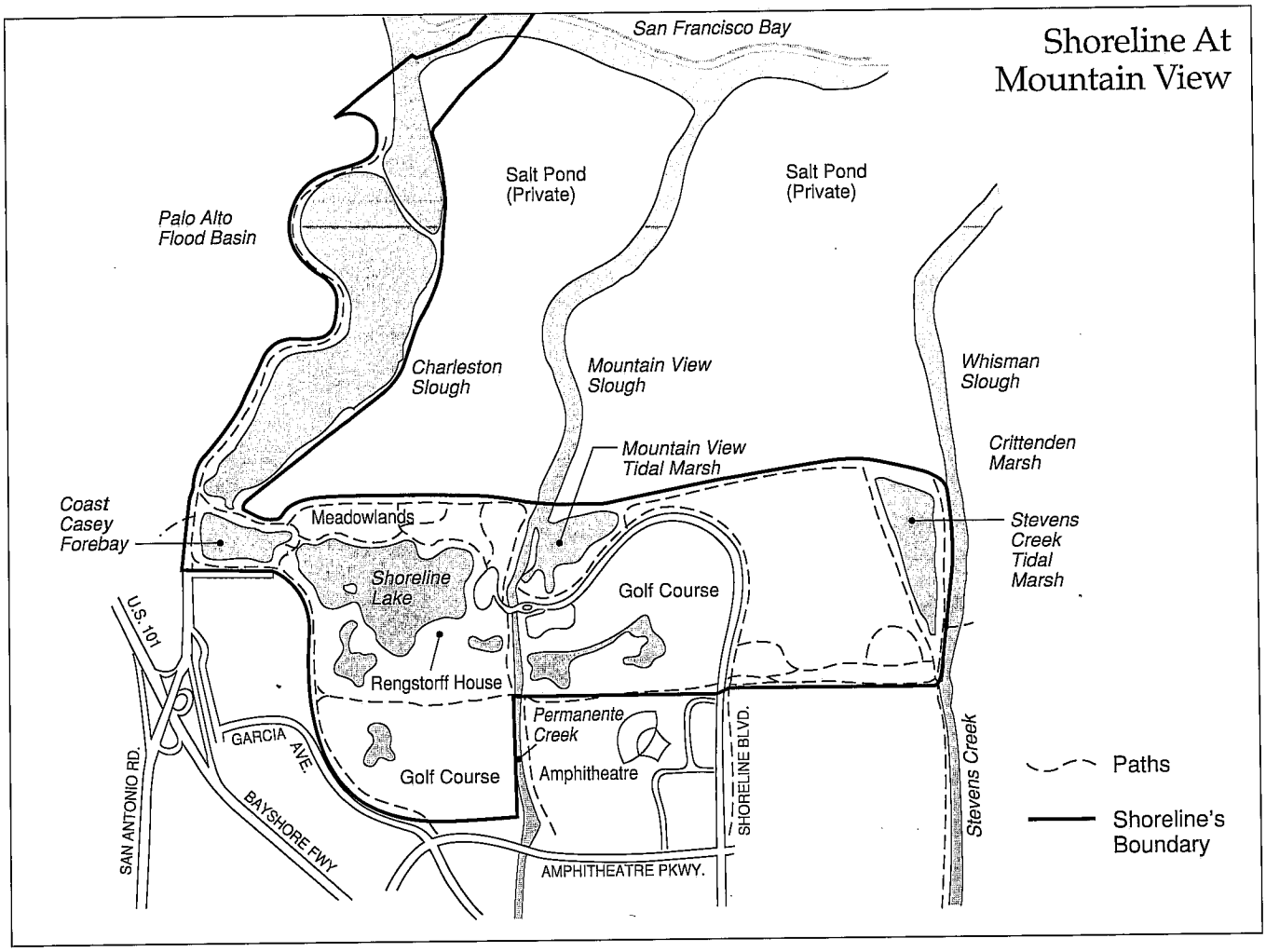
Parks and Open Space Facilities

Type of Facility	Number	Total Acreage	Average Size
Community Garden	1	1.0 acres	1.0 acres
Mini-park	7	5.6 acres	0.8 acres
Neighborhood Park	9	40.2 acres	4.5 acres
District Park	2	59.0 acres	29.5 acres
Regional Park	1	662.2 acres	662.2 acres
Total	**21**	**768.0 acres**	

Figure 1. City-owned Parks and Open Space Facilities.

They usually include ornamental landscaping, benches, and play equipment.

The City's nine neighborhood parks are Eagle, Pioneer, McKelvey, and Sylvan, which are independent of school sites; and Bubb, Cooper, Landels, Stevenson, and Whisman, which are next to school sites and benefit from sharing open space with the schools. Neighborhood parks range from two to eight acres, and serve people who live within half a mile. These parks create a focus of activity and help identify neighborhoods. They usually have open-grass fields for active recreation, play and



Shoreline at Mountain View Regional Recreation and Wildlife Area.

climbing equipment for younger children, and some type of sports facility such as swimming pools, tennis courts, or baseball fields.

Mountain View's two district parks, Rengstorff and Cuesta, are large parks designed to serve the whole city. Both have lighted tennis courts, play equipment, picnic tables, public rest rooms, and off-street parking. Rengstorff Park includes the Mountain View Community Center and Auditorium, the Senior Center, and a pool for swimming and diving. Rengstorff also has a great deal of open turf, whereas Cuesta Park has more plants and trees. Cuesta Park includes the Cuesta Tennis Center and 12 acres of orchard land, which were undeveloped as of 1992.

The largest open space resource in the city is its regional park, Shoreline at Mountain View. Shoreline is a 662-acre open space and wildlife preserve consisting of wetlands, marshes, upland habitats, a golf course, sailing lake, and the historic Rengstorff House. Shoreline is a regional attraction, drawing visitors from all over the South Bay. The park's hiking and biking trails are especially valuable to the thousands of people employed in the North Bayshore area, who use the park on their lunch hours and after work.

Another regional facility in Mountain View is the Stevens Creek Trail, begun in 1991. When it is completed, the trail will follow Stevens Creek through several cities, from Shoreline at Mountain View to the Stevens Creek Reservoir in the hills above Cupertino. Mountain View has already built a portion of the trail and has linked it with the Bay Trail, a hiking and biking trail being built around the shores of San Francisco Bay and San Pablo Bay.

Mountain View has also developed or contributed major funding to several open space resources owned by other agencies. These include Rex Manor mini-park built on the Hetch Hetchy right of way, four neighborhood parks—Castro, Monta Loma, Graham, and Crittenden—built on school district lands, and Deer Hollow Farm. Deer Hollow, located in the hills above Los Altos, is a 10-acre working farm serving as a nature preserve and environmental education center. These facilities, and those described above, are shown on Figure 2.

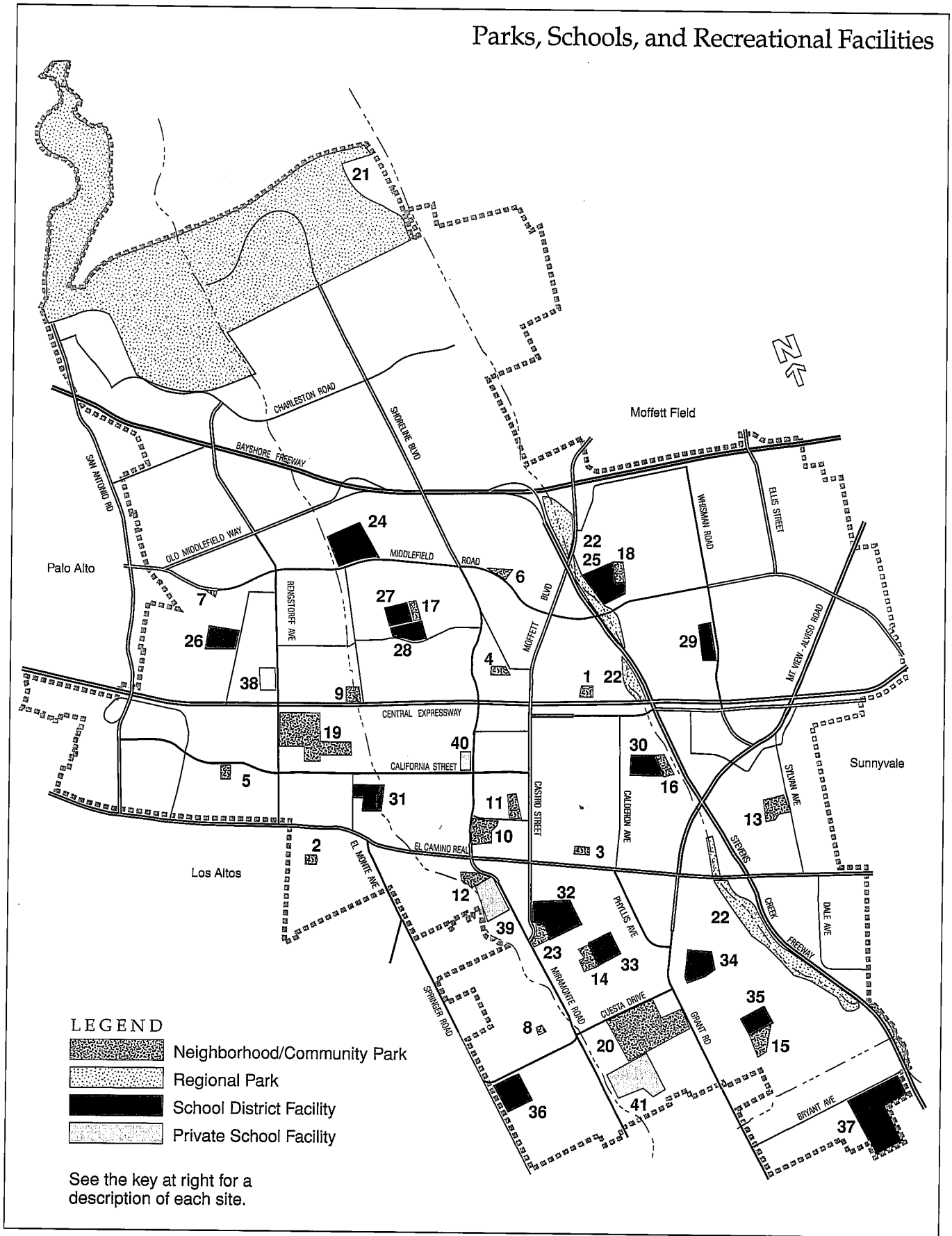


Figure 2. Parks, Schools, and Recreational Facilites.

KEY

Community Garden

1 Willowgate Garden

Mini-parks

2 Blackfield Park
3 Fairmont Park
4 Jackson Park
5 Klein Park
6 San Vernon Park
7 Thaddeus Park
8 Varsity Park
9 Rex Manor Park

Neighborhood Parks

10 Eagle Park
11 Pioneer Park
12 McKelvey Park
13 Sylvan Park
14 Bubb Park
15 Cooper Park
16 Landels Park
17 Stevenson Park
18 Whisman Park

District Parks

19 Rengstorff Park
20 Cuesta Park

Regional Parks

21 Shoreline at Mountain View
22 Stevens Creek Trail (proposed)

City-Owned Recreation Facilities

23 Mountain View Sports Center

Public School Facilities

24 Crittenden Junior High School
25 Whisman School
26 Monta Loma School
27 Theuerkauf School
28 Stevenson School
29 Slater School
30 Landels School
31 Castro School
32 Graham Junior High School
33 Bubb School
34 Huff School
35 Cooper School
36 Springer School
37 Mountain View High School

Private School Facilities

38 St. Athanasius School
39 St. Joseph School/South Bay Christian Center
40 Seventh Day Adventists School
41 St. Francis High School

Key to Figure 2. Parks, Schools, and Recreational Facilites.

Acquisition

Mountain View's parks and open space resources are described and quantified in the City's Open Space Vision Statement. That document contains recommendations for acquiring, developing, and preserving open space over the long term. It divides the city into 10 planning areas and assesses each area's need within a community-wide context. Specifically, the Vision Statement examines whether an existing resource is in jeopardy of being lost through sale, if the planning area is deficient in open space as compared to National Recreation and Parks Association standards, if the loss or addition of a park would have a significant effect on the City's overall park system, and if additional costs will be incurred if space is acquired.

The Vision Statement determined that Mountain View is exceptionally well served community-wide, but that some neighborhoods would benefit from improved access to open space. Overall, Mountain View's ratio of open space per person exceeds national guidelines. However, most of this open space is at Shoreline, in the North Bayshore District. The Vision Statement lists a series of future open space acquisitions and assigns priorities to them to improve the distribution and accessibility of open space throughout the city. It uses national standards to measure open space needs, but gives additional consideration to location, accessibility, and types of open space that are suitable for particular neighborhoods.

One way of acquiring property to meet the City's needs is to use California Government Code Section 66477, the Quimby Act. This law allows cities to require builders of residential subdivisions to dedicate land for parks and recreational areas, or pay an open space fee to the City. Mountain View requires developers to dedicate at least three acres of park land for each 1,000 persons who will live in a new housing project. This requirement is applied to housing that is owned or rented.

National Recreation and Parks Association Standards

Mini-park: A small facility serving a specific population such as children or senior citizens. It requires one-quarter to one-half acre per 1,000 people served. **Neighborhood Park:** A higher-intensity recreation area serving people within a half-mile. It requires one to two acres per 1,000 people served. **District Park:** A much larger recreational facility consisting of attractions that could include athletic fields, picnic areas, swimming pools, and tennis courts, among others. It requires five to eight acres per 1,000 people served.

Mountain View uses the Quimby Act to acquire and develop open space as new housing is built on vacant land and underused properties. According to the section on Vacant Sites and Potential Development in the Residential Neighborhoods Chapter, about 120 acres of vacant land were zoned for residential development in 1990. These properties could hold from 1,000 to 3,700 new housing units and accommodate 2,200 to 7,800 residents. Residential development of that scale would need between 20 and 60 acres of park land, based on the National Recreation and Park Association standards.

In addition to infill development on vacant sites, the Community Development Chapter lists seven sites where rezoning or policy changes would add 2,150 new units, accommodating 4,500 people. These residents would need between 30 and 40 acres of park land. The total need for more park land generated by the City's housing policies is between 50 and 100 acres. However, the park land dedication ordinance would only generate 35 to 50 acres. Therefore, it is important that the City set priorities for acquiring open space in neighborhoods with a critical need, that it look into other cost-effective methods of acquiring open space, and that it make existing parks more accessible to take better advantage of the community-wide supply of open space land.

GOAL **A**

Acquire enough open space to satisfy local needs.

Setting Priorities. Open space needs change when new park land is acquired or enhanced, when new residential developments are built, and when public opinion changes about recreation. It is necessary to look at open space needs every year because open space planning is a dynamic process affected by budgetary and other constraints. That is why Mountain View sets priorities for acquiring and developing open space in routine updates of the Parks and Open Space Plan.

The Parks and Open Space Plan seeks to involve as many people as possible in the decision-making process. The process uses neighborhood surveys, decision-making forums, and the involvement of competing interests. Strategies that come from this process can then be published in yearly updates of the plan, giving the community timely and accurate information on the City's open space planning policies.

Policy 1. **Establish a priority system for acquiring open space.**

Action 1.a Encourage comprehensive public participation in open space plans.

Action 1.b Monitor demographic trends and analyze their effect on open space needs.

Action 1.c Continue to use the National Recreation and Parks Association standards for evaluating open space demand at the neighborhood level.

Action 1.d Use the Parks and Open Space Plan to identify neighborhoods with open space needs.

Action 1.e Update the Parks and Open Space Plan every year to consider open space opportunities in new residential areas.

Action 1.f Maintain an inventory of vacant properties that could possibly be purchased and developed as public open space.

Cost Effectiveness. The park land dedication ordinance does not, by itself, provide enough open space for future use. Also, the amount of money available for buying open space has decreased due to reduced sales tax revenues and a slowdown in the development of large projects, which bring in new property taxes. As a result, the City is using more cost-effective ways to acquire public open space. One of these methods involves using the State's Education Code Section 39390, the Naylor Act, which allows cities to buy a portion of the open areas of surplus school district properties at 25 percent of market value. In the 1980s, Mountain View monitored school district properties and used the Naylor Act to purchase 5.5 acres of the old Mountain View High School and one acre of Klein School. Another strategy is to pursue agreements or "conservation easements" allowing public access to private properties for recreational purposes. Easements such as these can be used to make it easier to travel between existing open spaces, making it unnecessary to buy and develop more sites.

Policy 2. **Acquire property for the establishment of open space resources as opportunities arise and funding sources permit.**

Action 2.a Explore the use of open space easements, long-term leases, cooperative agreements, and other cost-effective means of acquiring open space.

Action 2.b Use precise plans and the design review process to require open space and recreational facilities in private developments.

Action 2.c Review surplus school sites for purchase as open space.

Action 2.d Use the park land dedication provisions of

the City's subdivision ordinance to require that developers dedicate land or pay open space fees to the City for park and recreational purposes.

Action 2.e Apply the Park Land Dedication or Fees Ordinance to all forms of residential development.

Improvements

After open space is purchased or leased, it is improved to create certain types of recreational opportunities. The improvements can be used to draw in specific groups such as families with small children, senior citizens, bicyclists, pedestrians, or youth sport leagues. Deciding which group to attract, and for what type of recreation, depends on several factors. These include the demographic makeup of the neighborhood, the type and availability of other open space in the vicinity, maintenance costs, and the desires of neighboring residents.

GOAL B **Improve open space areas to provide a diversity of recreational and leisure opportunities for the community.**

Urban Trails. Urban trails are continuous open space corridors. They offer scenic views, commute alternatives, and recreational opportunities; serve as migratory channels for wildlife; and connect neighborhoods and other parks and recreational facilities. Urban trails through Mountain View will include the Stevens Creek Trail, and could include future trails along the Hetch Hetchy right of way and the Tasman LRT line.

Future trail will parallel Stevens Creek.

The Stevens Creek Regional Trail is a proposed 10-mile trail system beginning in Shoreline at Mountain View and crossing through several cities to the Stevens Creek Reservoir. Mountain View has completed the northernmost section of the trail from Shoreline to L'Avenida and plans four additional segments. Each section is planned as a complete trail which would connect existing open spaces. Linking these sections connects neighborhoods and creates logical points to stop until the next section of the trail can be completed. The City plans to cut costs by using recreation easements wherever possible, rather than buying property, and relying on volunteers to help build and maintain parts of the trail.

The 80-foot-wide Hetch Hetchy right of way cuts across Mountain View from its northeastern border with Sunnyvale to its southwestern border with Los Altos. The City and County of San Francisco owns the right of way and uses it to transport water through two underground pipes from the Hetch Hetchy Reservoir to cities on the Peninsula. (See Figure 3, Transmission and Pipe Lines.) Development atop the right of way is limited to landscaping, paving, and some temporary structures. Other cities, such as Los Altos, have taken advantage of this development restriction to build urban trails.

A third trail could be built along the new Tasman LRT line, which runs in a north-south direction between U.S. 101 and Central Expressway. This trail would cross both the Stevens Creek and Hetch Hetchy trails, providing a needed link to the Whisman Industrial District. This trail also would improve access to public transportation.

Policy 3. **Develop a system of urban trails in Mountain View.**

Action 3.a Develop a trail along the banks of Stevens Creek.

Action 3.b Encourage Sunnyvale, Los Altos, and Cupertino to develop a regional trail along their banks of Stevens Creek.

Action 3.c Consider developing urban trails along the Hetch Hetchy right of way and the old Southern Pacific rail line.

Action 3.d Act as catalyst to encourage other South Bay jurisdictions to complete their sections of the Bay Trail.

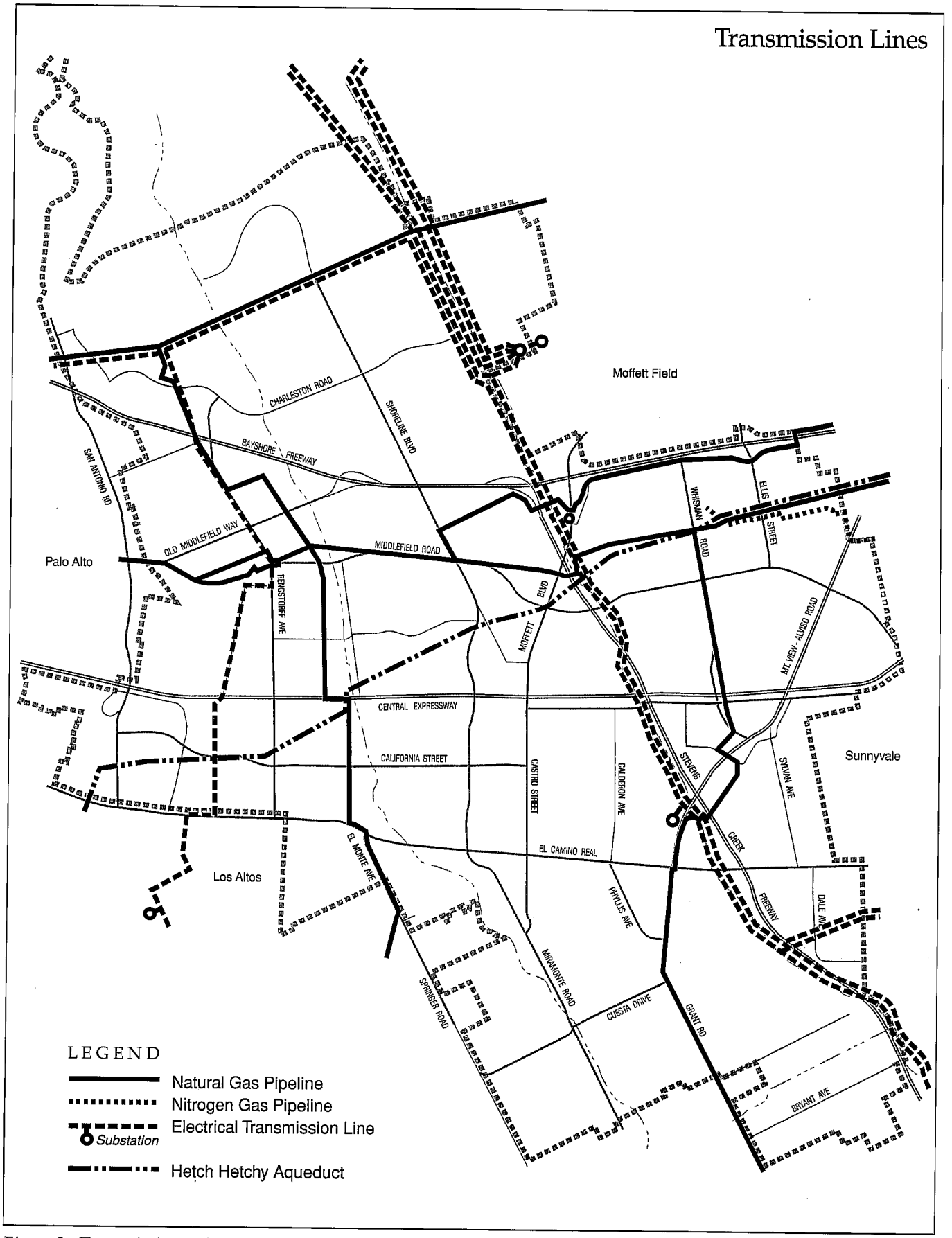


Figure 3. Transmission and Pipe Lines.

Action 3.e Build entry points, pathways, and bridges to link the urban trail system, and connect it with Shoreline at Mountain View.

Shoreline At Mountain View. Shoreline at Mountain View is a 662-acre regional recreation and wildlife preserve which forms the City's northern boundary. It has about 237 acres of wetland habitat, a 200-acre golf course, 195 acres of upland habitat, and 30 acres of utility and maintenance rights of way. Jogging, bicycling, wind surfing, small boat sailing, golf, and environmental education are among the activities available at Shoreline.

Before 1970, the land that now contains Shoreline consisted of a junkyard, hog farm, and a sanitary sewer treatment plant. Several plans for open space and recreational use of the area were developed; however, concerns about the environmental implications of these proposals resulted in the current plan, which focuses on wildlife preservation in a natural setting. After deciding on the development plan, the City found it needed money to buy land and prevent seasonal flooding. Both problems were solved when Mountain View allowed San Francisco to use portions of the site as a sanitary landfill. The garbage was distributed according to a careful plan and then capped with clean earth to provide good planting conditions and raise the elevation of the land to prevent flooding. Dumping has now ceased, and Shoreline's staff is restoring the land, placing major emphasis on reintroducing native plants and enhancing wildlife habitats.

Shoreline is bordered to the north by two privately owned salt evaporation ponds. Both salt ponds, a total of 850 acres, are listed as potential additions to the San Francisco Bay National Wildlife Refuge. The refuge was authorized by Congress in 1972 and has about 18,000 acres of land in Alameda, San Mateo, and Santa Clara Counties. Congress increased the acquisition authority of the refuge to 43,000 acres in 1988 and included most of the salt evaporation ponds. The salt ponds already provide valuable wildlife habitat, so acquiring them as a public wildlife refuge is a low priority. Mountain View favors the refuge eventually managing these ponds for wildlife.

Policy 4. Improve and expand wildlife habitats next to Shoreline.

Action 4.a Ensure that any use on the completed Vista Slope landfill site south of Shoreline provides unobstructed views of the Bay.

Action 4.b Support the U.S. Fish and Wildlife Service in expanding the San Francisco Bay Wildlife Refuge.

Action 4.c Restore most of the completed landfill areas in the North Bayshore for open space uses including upland habitat necessary to support adjacent salt marsh habitats.

Action 4.d Develop a circulation plan to improve pedestrian and bicycle access to Shoreline.

School Sites. School sites are a large part of local open space reserves because Mountain View has almost no remaining vacant land. This is why it is important that school sites are developed for a range of activities. Mountain View has 14 public school sites with about 150 acres of open space and an additional 20 acres of City-owned park land next to some of these schools. The City has helped pay for developing many school sites as neighborhood playgrounds, including baseball fields, tot lots, and tennis courts. The joint use of school sites as neighborhood parks is essential to meeting the open space demands of Mountain View's residents.

Policy 5. Develop cooperative arrangements with school districts to enhance property in and around local schools for use as neighborhood parks and playgrounds.

Action 5.a Plan and develop athletic facilities and playfields at Graham Middle School in cooperation with the Mountain View School District.

Action 5.b Develop park and playground amenities at Slater School, in cooperation with the Mountain View School District.

Action 5.c Pursue shared funding from the City of Los Altos and the Los Altos School District to upgrade the Springer School grounds to a neighborhood park.

Action 5.d Explore the joint use of St. Joseph School for public and private parking, playground, and athletic facilities.

Privacy. When the City plans to improve open space, it balances the rights of people living next to these areas with the needs of other residents to use and enjoy the open space. It's important that parks, schools, and trails are accessible and appropriately used, but it is imperative that the privacy and security of neighboring residents are not compromised. This is especially important when the public is allowed access to areas such as Stevens Creek, that have traditionally been off-limits.

Policy 6. Be sensitive to the need for privacy and security of neighboring residents when developing trails and other open spaces.

Action 6.a Notify all residents within 300 feet of any

proposed open space enhancement and involve them in the design and development of open space resources.

Action 6.b Place signs at open space areas to show hours of use.

Use

A City can emphasize and reinforce the recreational, social, and cultural values of its residents through the way it uses its parks and open space. Mountain View recognizes that it's important to reflect the desires of its residents by using its parks and recreational facilities efficiently and for a diversity of programs. The City ensures that parks are used appropriately and that they have compatible neighbors.

GOAL **C**

Make open spaces and recreation facilities available for different uses.

Recreation. Mountain View's park and recreation buildings meet a portion of the needs of residents for recreation and socialization. Activities and classes are conducted at Cuesta and Rengstorff parks, at Crittenden and McKelvey athletic fields, and at various other sites including Deer Hollow Farm, the Mountain View Sports Pavilion, the Senior Center, and the Mountain View Community Center. Typical activities include classes and sporting events for children and adults, seminars and special events for senior citizens, and environmental education for youths and their families.

Policy 7. Continue to offer a range of recreation programs at the City's parks and recreation facilities.

Action 7.a Conduct public opinion surveys to find the types of activities most residents prefer.

Action 7.b Hold public hearings to gauge the open space needs and desires of neighboring residents.

Action 7.c Draft a Recreation Element for the General Plan in coordination with the Parks and Recreation Commission.

Action 7.d Facilitate adult and youth sports leagues and programs.

Action 7.e Continue to conduct recreation and athletic programs tailored to the needs of specific user groups, such as aquatics, day camps, environmental education, and special-interest classes.

Cultural Awareness. The percentage of Asian-American, Latin-American, and African-American residents of Mountain View continued to increase during the 1980s, according to the 1990 Census. The City's parks, playgrounds, and schools can be used to reflect this diversity by improving awareness of the city's cultural makeup and by providing opportunities for people of different ethnic, social, and economic backgrounds to share a common experience. For example, when Mountain View's sister city, Iwata, Japan, presented a rock garden to the City, it was placed in a quiet section of Pioneer Park as a reminder of Mountain View's cultural ties to Japan. In the same way, open space can be used as staging grounds for special events such as the Heritage Faire or afternoon concerts.

Policy 8. Use parks and recreation facilities to improve awareness and understanding of Mountain View's culture.

Action 8.a Include cultural features such as Sister City gardens and historical markers in the design and development of City parks.

Action 8.b Recruit individuals from all backgrounds to serve on the City's boards and commissions.

Action 8.c Use the Performing Arts Center to present a diversity of cultural programs.

Cultural Arts. Cities can give their residents opportunities to pursue interests in music, literature, visual arts, and performing arts by building cultural arts facilities and by conducting cultural arts programs. Shoreline Amphitheater, the new Performing Arts Center, the Library, the community center, and local schools all offer these opportunities.

The largest cultural arts facility in Mountain View is the Shoreline Amphitheater. This concert arena is built on land owned by the City but leased to a private operator. It is a regional arena, attracting spectators from the entire Bay Area and drawing musical artists of international acclaim.

The Mountain View Center for Performing Arts was opened in 1991 as part of the City Hall complex. It is a state-of-the-art theater, containing the Main Stage, Second Stage, and Park Stage amphitheater. The Main Stage seats 625 in a standard theater setting. The Second Stage seats 80 to 228 depending on setup and houses performances such as cabaret, theater-in-the-round, and experimental works. The Park Stage amphitheater is used for casual lunchtime or evening performances and seats

around 300. About 350 performances each year are given by local community groups, professional companies from throughout the Bay Area, and touring artists and attractions from around the world.

Other important cultural arts programs in Mountain View include the Arts-in-Action and Music-in-Action programs, both of which are coordinated by the Community School of Music and Arts. CSMA is a private, nonprofit organization founded in 1968 to foster individual artistic abilities and promote awareness and appreciation of art in the community.

Policy 9. **Provide opportunities for residents to participate in cultural arts events and programs.**

Action 9.a Use local publications and other media to survey the community's interests in cultural arts.

Action 9.b Continue to organize junior theater productions.

Action 9.c Sponsor and organize concert series and other performance events as opportunities arise.

Action 9.d Use Arts-in-Action and Music-in-Action classes to offer art and music appreciation opportunities for youths.

Action 9.e Establish a corps of volunteers to serve as docents at various cultural arts programs and facilities.

Compatibility. A compatible use of an open space resource is one that does not conflict with the land's value as an open or natural area. Mountain View protects open space by restricting the activities conducted there. For example, creeksides and the shoreline are used for walking, bicycling, and environmental education. Urban parks such as Rengstorff and Cuesta are developed for intensive recreation and sports. In this way, the City offers a full set of recreational activities while protecting natural areas from disruption or intensive use.

Policy 10. **Encourage compatible uses in the city's open spaces.**

Action 10.a Develop natural areas, creeks, and Shoreline for low-intensity uses such as walking, jogging, and environmental education.

Action 10.b Direct group activities, sport facilities, and appropriate ornamental landscaping to the City's urban parks system.

The Community Development Chapter (Policy 7, page 20) discusses compatible uses on adjacent land.

Preservation

Open space is essentially a non-renewable resource. When properties such as school sites are redeveloped for non-recreational uses, their value as open space is lost. Vacant properties are increasingly scarce in Mountain View, and the few remaining sites are under development pressure. To limit development, the City has adopted four open space zoning districts and has established three open space designations in the General Plan.

GOAL **D** **Preserve open space for future generations.**

Zoning. Zoning and General Plan designations are among the most effective ways to preserve open space. California law requires cities to adopt an open space zoning ordinance to carry out general plan policies. Mountain View has adopted the Agricultural District to preserve land for agricultural use, the Open Space Commercial District and the Public Facilities District to encourage recreational and cultural uses and to preserve open space, and the Flood Plain District to protect people and property improvements from floods and other hazards.

Policy 11. **Protect designated public open spaces from redevelopment.**

Action 11.a Evaluate the potential of designating certain Shoreline Boulevard properties near Downtown for open space.

Action 11.b Use the Public Facilities zoning district to preserve school district playgrounds in open space and work with other jurisdictions to achieve this objective.

Action 11.c Use the Flood Plain district to preserve open space lands and to protect people and buildings from flood hazards.

CONSERVATION OF RESOURCES

The Conservation Section conveys local strategies for the preservation, development, and use of natural resources including air, water, solid waste, soil, wildlife and wildlife habitats, historic resources, and energy. The purpose of this section is to identify important natural resources within Mountain View, recognize that they exist in limited quantity, and manage them so that they are preserved.

Air Quality

Both the State of California and the federal Environmental Protection Agency have established Ambient Air Quality Standards for six air pollutants, those by which overall air quality is measured. These six are photochemical ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, particulate matter, and lead. The San Francisco Bay Area Air Basin, of which Mountain View is part, has met each of the standards except ozone and carbon monoxide. Ozone forms when precursor pollutants, hydrocarbons and nitrogen oxides, react together in sunlight. Sources of ozone precursors include motor vehicles, petroleum and chemical industries, consumer products, and dry cleaning. Eighty to 90 percent of carbon monoxide emissions result when motor vehicles burn gasoline incompletely.

Ozone and carbon monoxide poisoning can be extremely harmful. Ozone diminishes lung function and makes people more likely to get respiratory infections. Carbon monoxide replaces oxygen in red blood cells, reducing the amount of oxygen reaching the heart, brain, and other vital organs. Senior citizens, children, fetuses, and people with respiratory and cardiovascular diseases are especially sensitive to the ill effects of carbon monoxide and ozone.

GOAL **E**

Protect and improve air quality.

Regional Planning. California first established its own air quality standards in 1977, making State standards stricter than federal standards. However, regional governments did not get the power to adopt and carry out plans to attain State standards until 1988, when the California Clean Air Act was passed.

The Clean Air Plan for the San Francisco Bay Area was developed by the Bay Area Air Quality Management District in cooperation with the Metropolitan Transportation Commission and the Association of Bay Area Governments. It includes additional controls on industry and introduces new transportation control measures (TCMs). TCMs attempt to reduce motor vehicle use through incentives to carpool, improved public transportation, parking management, and special motor vehicle fees. There is more information on this subject in the Circulation Chapter under Transportation Demand Management.

To help achieve the transportation part of the Clean Air Plan and to reduce traffic congestion, all urbanized counties in California are forming Congestion Management Agencies. These agencies are writing Congestion Management Plans designed to reduce traffic congestion by improving the coordination between land use and transportation planning. The plans also use growth-management techniques that include setting standards for the amount of traffic that can be accommodated at key roads and intersections, improving public transportation facilities and linking them together, and balancing the mix of jobs and housing.

Policy 12. Participate in regional planning efforts to improve air quality.

Action 12.a Continue to cooperate with the Bay Area Air Quality Management District in carrying out the regional Clean Air Plan.

Action 12.b Work with the Congestion Management Agency to carry out the Congestion Management Plan.

See Policy 1 and Action 1.b in the Circulation Chapter, page 53.

Local Strategies. The major efforts to reduce air pollution come from regional, State, and federal programs, but Mountain View can do much to reduce local emissions. For example, the City's Transportation Demand Management Ordinance aims at reducing the number of vehicles on the road by encouraging carpooling. Mountain View is building urban trails and bicycle paths to get people out of their cars entirely. Other strategies the City uses include zoning to place housing near jobs, preserving undeveloped land as open space, and monitoring local businesses to be sure they are complying strictly with air quality standards.

Policy 13. Promote local efforts to improve air quality.

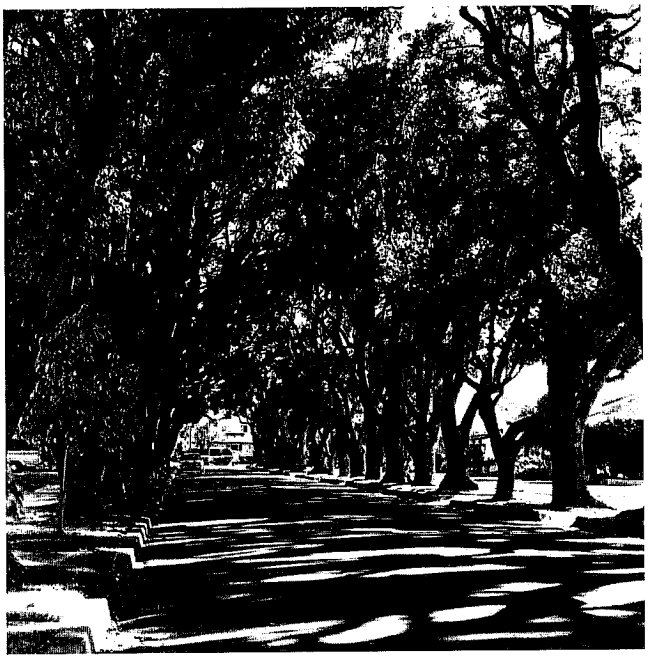
Action 13.a Use the development review process to evaluate the cumulative effects of new development on air quality and impose appropriate mitigation measures through the enforcement of CEQA.

Action 13.b Use the City's Transportation Demand Management Ordinance and similar transportation measures to encourage commute alternatives.

There is more information on this topic in the Transportation Demand Management section of the Circulation Chapter.

Action 13.c Improve awareness of the Bay Area Air Quality Management District's enforcement program to regulate specific businesses, especially those near residential neighborhoods.

The Urban Forest. Trees are particularly important in a mature city like Mountain View. Trees symbolize stabil-



Camphor trees line Velarde Street.

ity, increase property values, improve air quality, beautify neighborhoods, and reduce energy consumption. In Mountain View, Velarde Street is a perfect example of the way street trees can dominate the landscape and even become a neighborhood landmark. Trees cool and purify the air. Widespread tree planting in business districts can reduce temperatures up to 25 percent. Trees also filter the air by ingesting some polluting particles and gases during photosynthesis.

Urban reforestation in Mountain View involves planting new trees on public and private properties, pruning and watering trees in public spaces, preserving Heritage Trees, and removing dead or dying trees. The City assumes responsibility for about 500 new trees every year through the street tree planting program, public works projects, and private developments. To keep the trees healthy, the Parks Division has a program that includes fertilization, irrigation, and soil fracturing. Soil fracturing breaks up compacted soil and sends nutrients directly to the tree roots.

Mountain View's Heritage Tree Ordinance aims at preserving large trees and trees designated to be of special historic value. This ordinance requires a special permit to move or remove any tree defined as a Heritage Tree. The City's Arbor Day program gives away any of nine varieties of native trees to residents who request them. The 1991 program delivered 140 new trees to residents.

Policy 14. Improve and expand the city's urban forest.

Action 14.a Adopt a comprehensive program for inventorying, planting, and maintaining street trees, and trees in other public open spaces.

Action 14.b Work with local non-profit agencies to plant trees and shrubs in appropriate areas throughout the city.

Action 14.c Continue the annual Arbor Day Program of giving trees to residents who request them.

Action 14.d Prepare and distribute handouts to educate people on the value, planting, and care of trees, especially during periods of drought.

Action 14.e Expand the tree Fertilizing, Irrigation, and Soil Fracturing Program during periods of drought.

Action 14.f Publicize and enforce the Heritage Tree Ordinance.

Action 14.g Promote the use of native plants wherever possible.

Water

Mountain View owns and operates its own drinking water utility, delivering an average of 12 million gallons to more than 15,000 customers each day. The distribution system has about 160 miles of underground pipes and three storage reservoirs. The largest, Whisman Reservoir, has a capacity of six million gallons and is used to balance supply and demand during periods of high consumption. The Miramonte Reservoir has a capacity of one million gallons and is used for storage. It has a standpipe for the City's connection to the Hetch Hetchy system. The Bryant elevated tank has a storage capacity of 125,000 gallons and is used for fire protection in the southeastern part of the city.

Surface water in Mountain View includes the San Francisco Bay, Charleston Slough, two salt evaporation ponds, four new lakes in Shoreline, several creeks that run only part of the year, and a variety of smaller water retention basins and ditches. Bodies of surface water are an important natural resource because they are wildlife habitats, people use them for recreation, water reenters the aquifer there, and they are used for flood control and the production of commercial goods.

GOAL **F**

Manage the City's water resources to supply urban uses and protect the environment.

Drinking Water Quality. Most of Mountain View's drinking water comes from the Grand Canyon of the

Tuolumne, a remote watershed in Yosemite National Park that feeds into the Hetch Hetchy Reservoir. This water is pure enough to be delivered unfiltered and is treated only with chlorine to prevent contamination and lime to prevent corrosion. However, a change in federal regulations requires that Hetch Hetchy water receive additional treatment, scheduled to begin in 1999.

Mountain View blends Hetch Hetchy water with ground water from five City wells. Well water is drawn from 500 to 800 feet below ground and is naturally filtered, requiring no treatment whatsoever. While there has been considerable public interest and concern about contamination of ground water in the San Francisco Bay Area, Mountain View's well water is tested regularly and continues to be better than the most stringent local, State, and federal water quality standards.

As of 1992, about 10 percent of the City's water supply came from the Santa Clara Valley Water District. This water is delivered by State and federal water projects to the District's Rinconada Water Treatment Plant in Los Gatos where it is purified. Treated water is then supplied to southeastern Mountain View through a pipeline completed in 1991. This water is not blended with Hetch Hetchy water to avoid possible taste and odor problems that could result from the different disinfection methods used.

Policy 15. Encourage activities that maintain and improve drinking water quality.

Action 15.a Continue to monitor drinking water quality and ensure that it meets or exceeds State and federal requirements.

Action 15.b Continue to enforce local, State, and federal codes to prevent contamination of ground water resources.

Action 15.c Provide technical assistance to State, regional, and federal agencies that oversee cleanup of groundwater contamination in Mountain View.

Action 15.d Assist the Santa Clara Valley Water District to locate abandoned wells and seal them to prevent the spread of contaminants to deeper-level aquifers which supply drinking water.

Storm Water Quality. Storm water is rain that does not seep into the ground but flows overland into storm drains and then into creeks and to San Francisco Bay. It may contain a variety of "non-point source" pollutants including heavy metals, oil, grease, household chemicals, pesticides, fertilizers, and eroded soil. These pollutants are washed from streets, construction sites, parking lots, and other exposed surfaces, unlike pollutants that come from "point sources" such as sewer pipes or industrial outflows. The federal Environmental Protection Agency has identified contaminants in storm water runoff as the leading cause of water pollution in the United States.

In Mountain View, storm water flows directly into Stevens Creek, Hale Creek, Permanente Creek, and Adobe Creek. From there, it enters the marsh lands at Shoreline and south San Francisco Bay. The City is dealing with the storm water pollution problem by enforcing restrictions on littering, increasing its storm drain cleaning and street sweeping programs, educating people about the proper disposal of household hazardous wastes, and increasing storm system inspections on commercial and industrial properties. In addition, the State has recently issued a National Pollutant Discharge Elimination System permit to all cities and agencies that drain water into south San Francisco Bay, requiring them to develop and carry out comprehensive storm water management programs.

Policy 16. Establish pollution control measures that keep pollutants from entering Mountain View's storm drain system to protect the city's surface water resources.

Action 16.a Carry out the Santa Clara Valley Non-Point Source Pollution Control Program.

The Santa Clara Valley Non-Point Source Pollution Control Program involves 13 cities in the Santa Clara Valley, the Santa Clara Valley Water District, and Santa Clara County that contribute runoff into south San Francisco Bay. The program's mission is to develop and administer a storm water management plan that controls water-borne pollutants at their source.

Action 16.b Use "best management practices" in new projects to prevent storm water from becoming contaminated.

Best Management Practices

"Best management practices" are actions taken to control the use of pollutants and prevent them from being discharged into the environment. Best management practices include engineered solutions, good housekeeping, and behavioral modification.

Action 16.c Look into technologies to separate and remove pollutants from the storm sewer system and use them if appropriate.

Future Water Requirements

Year	Population Served	Per Capita Demand (GPD)	Estimated Annual Demand (KCCF)
1990	63,900	195	6,100
1995	67,400	215	7,100
2000	69,900	215	7,300
2005	70,500	215	7,400
2010	72,300	215	7,600

GPD: Gallons per day (includes commercial and industrial users).
KCCF: Hundred thousand cubic feet.

Source: City of Mountain View, 1990 Urban Water Management Plan

Figure 4. Future Water Requirements.

Action 16.d Revise local ordinances and, if necessary, develop new ordinances to limit non-point source pollution.

Water Supply. In normal years, Mountain View gets about 74 percent of its water supply, a capacity of 12 million gallons a day, from the Hetch Hetchy reservoir. Another 1.2 million gallons a day is available from the Santa Clara Valley Water District. City wells can produce up to 2.5 million gallons from underground aquifers. The city also uses an average of half a million gallons a day of reclaimed water from the waste water treatment plant in Palo Alto. Unlike other sources, reclaimed water is not drinkable. It is used primarily for irrigation and construction. In total, the City's water customers can be supplied with roughly 16.2 million gallons a day, or 790,600,000 cubic feet per year.

Projections of future water demand have been calculated using population estimates supplied by the Association of Bay Area Governments and an estimated per-capita water demand rate based on historic trends.

Figure 5 shows that the estimated amount of water demand to 2010 is less than the total annual water system supply, but conditions governing the City's water purchases and the availability of well water could change. For example, the State Department of Water Resources was, as of 1992, reviewing the health of the San Francisco Bay-Delta ecosystem and could require that the San Francisco Water Department allow more water to flow down the Tuolumne River to the Sacramento Delta. This would reduce the water available to suburban customers like Mountain View.

Local water sources are also threatened by prolonged periods of drought. The City's wells become less productive during drought years because there is not enough rainfall to soak into the ground and replenish the amount that is withdrawn through wells. If too much water is withdrawn, the ground begins to sink. This sinking is called subsidence and is irreversible. Between 1940 and 1970, subsidence was fairly common throughout the Santa Clara Valley. It caused the ground level in Mountain View's North Bayshore District to drop about four feet. The Santa Clara Valley Water District began a comprehensive water-recharge program in 1971 that limits the amount of water that can be withdrawn to the amount that can be replenished.

To evaluate future water supply and demand requirements, Mountain View adopted an Urban Water Management Plan. The document, written in 1985 and updated in 1990, aims to reduce the city's water consumption, saving 14 billion gallons of water by 2010. It lists strategies to help Mountain View meet its future supply needs. These include a public information campaign, leak detection program, drought-tolerant landscape guidelines, use of reclaimed water, elementary school education on saving water, and water audit programs.

Policy 17. Maintain the City's ability to meet its water supply requirements.

Action 17.a Work with other local agencies and water wholesalers to develop new water sources and add to existing sources.

Action 17.b Continue to update and comply with provisions of the City's Urban Water Management Plan.

Water Conservation. Mountain View uses a variety of methods to keep the demand for water within supply limitations. It uses reclaimed water to irrigate City-owned landscaping and flush out sewers. It plants native species in City parks and uses water-saving appliances in its buildings. It prohibits residents from cleaning paved areas with water, watering their lawns between 9 a.m. and 3 p.m. during most of the year and until 6 p.m. during daylight saving time, washing their cars with a hose that does not have an automatic shutoff valve, and being served water in restaurants unless they request it. It calls for drought-resistant native plants accustomed to the city's microclimates in new and renovated private landscapes.

Use of drinking water went down about 15 percent between 1985 and 1990. Some of that came about because a major silicon chip manufacturer, which used a lot of fresh water, moved out of Mountain View, but the City's Water Conservation Program is responsible for just over half of the reduction. Mountain View expects this success to continue and increase, even during years when rainfall is plentiful.

Policy 18. **Recognize that water is a limited resource and encourage water conservation measures where possible.**

Action 18.a Use reclaimed water, efficient irrigation, and drought-tolerant landscaping on City lands, and encourage people to use them on private properties.

Action 18.b Prepare and distribute pamphlets and use local publications to educate people on water conservation techniques.

Action 18.c Adopt and carry out "best management practices," along with more than 100 cities in the state, for water conservation as outlined in the League of California Cities 1991 Memorandum of Understanding on urban water conservation in California.

Sanitary Sewer. Mountain View's sanitary sewer system processes about 7.2 million gallons of the 12 million gallons of water pumped into the city every day. The remaining 4.8 million gallons are returned to the environment as the water evaporates, runs off into the creeks and the Bay, or soaks into the ground. Waste water collected in the sewer system flows through a sewer main, generally located in the center of public streets, to one of three large-capacity collector pipes. These pipes meet at the Main Sewage Lift Station in the North Bayshore, where sewage is pumped to the Regional Water Quality Control Plant in Palo Alto. The plant receives waste water from Palo Alto, Mountain View, Los Altos, East Palo Alto, Stanford University, and Los Altos Hills.

The Regional Water Quality Control Plant has been expanded several times since it was built in 1934. If a treatment plant reaches 75 percent of total capacity, California law requires that a study must be undertaken to decide if the plant will be expanded, if additional capacity will be purchased from another plant, or if land use controls will be enacted to limit the production of additional sewage. The regional plant reached 77 percent of capacity in 1982, and a study found that it would be necessary to expand it. Its capacity rose from 30.6 million gallons a day to 38.0 million gallons a day when construction was completed in 1988. Capacity rights for each contributing agency are based on State population estimates. No increases are allowed for industrial and commercial output.

Mountain View's 1991 Sanitary Sewer Master Plan found that the total amount of waste water generated through 2010 will not exceed the City's flow entitlement at the treatment plant. Population and land use predictions suggest that Mountain View may one day generate up to 8.8 million gallons of waste water a day, well below its treatment entitlement capacity of 14.4 million gallons. However, the Master Plan did identify some streets where new lines are necessary because sewer flow exceeds pipe capacity. The quality of waste water discharged into Mountain View's sewer system is also of concern. The City's 1973 Industrial Waste Ordinance requires pre-treatment of industrial waste to comply with federal, State, and local standards. This ordinance protects public health, the City's sewer system, the Water Quality Control Plant, and the Bay.

Sewer Flow and Capacity

Contributing Agency	Capacity Rights (MGD)	Actual Flow (MGD)	Percent of Capacity	Unused Capacity (MGD)
Mountain View	14.4	7.2	0.50	7.2
Palo Alto	14.5	6.7	0.46	7.8
Los Altos	3.6	2.5	0.69	1.1
East Palo Alto	2.9	1.5	0.52	1.4
Stanford	2.0	1.2	0.60	0.8
Los Altos Hills	0.6	0.2	0.33	0.4
Total	**38.0**	**19.3**	**0.51**	**18.7**

MGD: Million Gallons per Day

Source: Palo Alto Regional Water Quality Control Plant

Figure 5. Sewer Capacity Rights and Average Flow.

Policy 19. **Provide adequate sewage treatment and capacity to serve the anticipated growth in Mountain View.**

Action 19.a Expand efforts to promote conservation of water and reduction of sewer outflow, especially among large industrial users.

Action 19.b Continue to require pre-treatment of industrial waste water.

Action 19.c Monitor the condition of sewer lines and continue to make improvements as necessary.

Solid Waste

Solid waste is any unwanted or discarded material that is not a liquid or a gas. Common solid wastes are paper products, metals, glass, plastics, cloth, food scraps, rock, soil, yard waste, and wood. In Mountain View, businesses generate 65 percent of the waste and households generate 35 percent. Much of this material is recyclable.

Since the early 1930s, Mountain View has disposed of its solid waste in three landfills north of U.S. 101, the Bayshore Freeway. The oldest and largest landfill, a 544-acre parcel, was closed in 1980 and has been redeveloped into the Shoreline Regional Recreation and Wildlife Preserve. The second-largest site is the 150-acre Vista Slope Landfill, west of Shoreline Boulevard. The site opened in 1980 and accepts privately hauled refuse. The smallest landfill is the 70-acre Crittenden Site, north of Crittenden Lane. It operated from 1968 to 1988 and was inactive but unclosed as of 1992. Eventually, the City would like to close all its landfills, and is exploring possible future uses for them through the North Bayshore Advisory Committee Study. These landfill sites will continue to be carefully monitored under regulations of the Integrated Solid Waste Management Board, the Regional Water Quality Control Board, and the Bay Area Air Quality Management District.

Mountain View contracts with the Foothill Disposal Company for refuse collection, disposal, and residential recycling. Through June 1993, this waste is deposited in the Newby Island Landfill in north San Jose. To meet landfill needs after mid-1993, Mountain View, Sunnyvale, and Palo Alto contracted jointly for 30 years of capacity at the Kirby Canyon Sanitary Landfill in south San Jose. A materials recovery facility and transfer station is planned in Sunnyvale to remove, process, and market recyclable materials. Recyclable materials include cardboard, metals, paper, tires, glass, wood, yard waste, plastic and large appliances. Non-recoverable solid waste will be compacted and transported to Kirby Canyon. Reducing the amount of landfill waste by recycling materials will allow the Kirby Canyon site to be used for the full 30 years.

GOAL **G**

Reduce the amount of solid waste generated in Mountain View.

Waste Reduction. California has a growing waste-management problem. People in Mountain View throw away an average of 8.2 pounds of solid waste every day, more than the state-wide average of seven pounds, the New York average of five pounds, and the national average of 3.5 pounds. Mountain View has a larger commercial and industrial base than most cities, which pushes up its per-person figure on solid waste. It's no surprise that California's landfills are rapidly filling up and that it's difficult to build new ones near cities. In response, the State Legislature passed the California Integrated Solid Waste Management Act in 1989. The Act requires the waste disposed in landfills to be reduced by 25 percent by 1992 and by 50 percent by 2000. The law also requires cities to adopt Source Reduction and Recycling Plans that specify how they will achieve the waste reduction goals. Mountain View's Source Reduction Program, drafted in 1991, expects to achieve a 25 percent waste reduction by 1995 and a 50.1 percent reduction by 2000.

Policy 20. **Promote waste reduction methods throughout the city.**

Action 20.a Carry out the City's Source Reduction and Recycling Plan.

Action 20.b Prepare and distribute pamphlets that educate Mountain View residents about reducing household wastes.

Action 20.c Give preference for City purchases to buying products that minimize packaging and can be reused.

Action 20.d Assist local businesses in developing strategies to manufacture, package, and consume commercial products with less waste.

Recycling. Recycling is collecting waste material or used products, then making new products with them. The curbside recycling program began in 1987 with single-family houses, was extended to 2,000 small apartment and condominium complexes in 1989, and added all remaining households by 1991. Residents place recyclable materials into burlap bags which are picked up every other week. Materials collected include glass bottles and jars,

aluminum and tin cans, plastic soft drink bottles, newspapers, and used motor oil. The City's recycling program collected over 9,026 tons of recycable materials in its first four-and-a-half years.

Volunteer neighborhood Block Leaders are the key to Mountain View's recycling program. More than 350 people joined this program in its first two years. They encourage their neighbors to recycle and post signs in their yards reminding the neighborhood when to put out their bags of recyclables. The City also promotes the program with semi-annual newsletters, monthly notices and articles in The *View*, and informational door hangers that contain pickup schedules and recycling tips.

Policy 21. Promote recycling and resource conservation.

Action 21.a Provide convenient, accessible drop-off and redemption sites for recycling.

Action 21.b Institute a yard waste collection and composting program.

Action 21.c Give preference for City purchases to durable products that are recyclable or made from recycled material or both.

Action 21.d Provide local businesses with technical assistance, information on State tax credits, and other incentives to use recycled materials in their manufacturing processes.

Action 21.e Amend the Zoning Ordinance to require suitable space for separating, storing, and collecting recyclables in new or substantially remodeled commercial and multiple-family structures.

Action 21.f Consider charging a variable garbage rate based on the amount of garbage generated.

Action 21.g Develop a program to reward innovative recycling and resource-conservation ideas.

Recycling also saves energy because it takes less energy to remanufacture recycled material than to extract that material from crude oil, mineral ores, or other original sources.

Soil

Soil, a mixture of mineral and organic matter, is produced very slowly as native rock surfaces are eroded by wind, water, and gravity. Soil sustains plant life, is an important natural resource, and is a crucial part of the ecosystem. High-quality topsoil can easily be harmed by human activities and can lose its life-sustaining capabilities or be lost to erosion and sedimentation if it is not cared for properly.

Mountain View is generally underlain by soils of the Sunnyvale-Castro-Clear Lake association. This association has 40 percent Sunnyvale soils, 25 percent Castro soils, 20 percent Clear Lake soils, 10 percent Willow soils, and 5 percent Bayshore soils. These soils were deposited in different geological eras and contain different amounts of sand, gravel, clay, and organic matter. Such soils tend to exhibit a high shrink-swell behavior that, unless the structures are properly engineered, can cause cracks in the soil and damage to buildings, building foundations, roads, and other infrastructure. There are no significant mineral resources in Mountain View.

Mountain View is a densely populated city with very little farming and no mining. However, soil is still an important resource because it sustains landscaping, traps and absorbs water, and provides a foundation for buildings.

GOAL **H** **Protect and preserve soil as a natural resource.**

Soil Erosion. Soils are removed from their original location and transported by wind, water, and gravity during erosion. Soils settle and accumulate in a particular location during sedimentation. Erosion and sedimentation are natural processes that can speed up when grading and other construction work are done, especially when the work is done near creeks or during the rainy season. Erosion causes the loss of fertile top soil, carves deep ruts and gullies, and fills in creeks and marsh lands. Plants shield the soil and bind it together, helping to prevent erosion. Mountain View's gently sloping terrain and use of erosion-control measures in the creeks significantly reduce erosion problems, but the City still recognizes that it is important to use proper grading and construction techniques to prevent soil erosion.

Policy 22. Encourage soil stabilization measures that prevent soil erosion and sedimentation.

Action 22.a Protect and preserve existing plant communities next to creeks to help prevent erosion.

Action 22.b Amend the Weed Abatement Ordinance to maintain native plant communities on large tracts of vacant land.

Action 22.c Protect and preserve existing plant communities as appropriate to prevent loss of soil on construction sites.

Action 22.d Include collection and redistribution of top soil on construction sites as a soil conservation measure.

Soil Contamination. Soils are contaminated when chemicals or other pollutants are improperly released and the soil becomes toxic or harmful to plants, animals, and people. Chemical pesticides and herbicides used in agriculture and leaks from underground storage tanks into surrounding soils have contaminated soils in Mountain View. Contamination from storage tanks, which has been mostly limited to gas stations and industrial properties, is much less widespread than agricultural contamination. This is because agriculture was Mountain View's main industry before World War II and production relied heavily on chemicals such as DDT. As a result, Mountain View requires a soil analysis before it approves sensitive land uses such as housing or day care.

Policy 23. Ensure the proper use, storage, and disposal of toxic chemicals to prevent soil contamination.

Action 23.a Continue to enforce the City's Hazardous Materials Storage Ordinance.

Action 23.b Continue to enforce the City's Toxic Gas Ordinance.

There is a more detailed discussion on chemical management practices and more Actions in the Hazardous Materials Section of the Public Safety Element.

Action 23.c Reduce the use of herbicides and pesticides on City-owned properties to the extent possible.

Action 23.d Educate residents and businesses on ways to reduce the use of herbicides and pesticides on their property.

Prime Agricultural Lands. There are two properties in Mountain View's Sphere of Influence that are designated as "prime agricultural lands" by the U.S. Department of Agriculture's Soil Conservation Service. One is a 45-acre property between Charleston Road and Amphitheater Parkway and the other is a 135-acre property north of NASA/Ames. The larger property is owned by the federal government and is outside the City limits in an unincorporated area of the County. Both properties are farmed on short-term leases and do not contribute substantially to the regional economy. They are not viable long-term land uses; therefore, the City does not have policies for their preservation. However, there is a 35-acre property between these two sites that is under a permanent PG&E easement. This site is considered a viable long-term use and is designated for agricultural use on the General Plan Land Use Map. Additionally, there are six other sites in the city, totaling 20.1 acres, that are either designated or zoned for agricultural purposes.

Policy 24. Keep agricultural properties that have a viable long-term future.

Action 24.a Use the Agricultural land use designation and zoning district to provide for long-term agricultural land use.

Action 24.b Use the Williamson Act as an incentive to retain property for agricultural use.

Under the Williamson Act, the land is taxed on the basis of its agricultural use instead of its fair market value under a 10-year contract between the owner and the County.

Wildlife and Wildlife Habitats

An inventory of wildlife habitats in Mountain View was conducted in 1990. Habitats were classified under the California Wildlife Habitat Relationships System. That system groups habitats into four broad categories—Urban-developed Habitats, Tree-dominated Habitats, Herbaceous Habitats, and Aquatic Habitats.

Urban-developed Habitats account for more than 90 percent of the wildlife habitat in Mountain View. This category has four subgroups—Commercial, Industrial, Urban Residential, and Urban Park. These habitats have been affected, to one degree or another, by urban development. Generally, areas with relatively fewer buildings, less paved surface, and more landscaping provide the most valuable habitats. Birds that forage in these habitats include rock doves, house sparrows, starlings, scrub jays, and house finches. Animals include raccoons, squirrels, opossums, and gophers.

Tree-dominated Habitats in Mountain View are located near Stevens Creek and Permanente Creek. This category includes coastal oak woodlands, valley-foothill creeks, and eucalyptus groves. Common tree species include California sycamore, valley oak, and willow. Barn owls and red-tailed hawks are among the species in these habitats.

Herbaceous Habitats, which include grasslands and wetlands, are found in Mountain View in Shoreline and along parts of Stevens Creek. Common grassland plants are wild oat, ripgut brome, wild barley, and a variety of thistles. The plants give food and cover to alligator lizards, ground squirrels, gophers, harvest mice, and California voles. Grassland birds include turkey vultures, northern harriers, American kestrels, and burrowing owls.

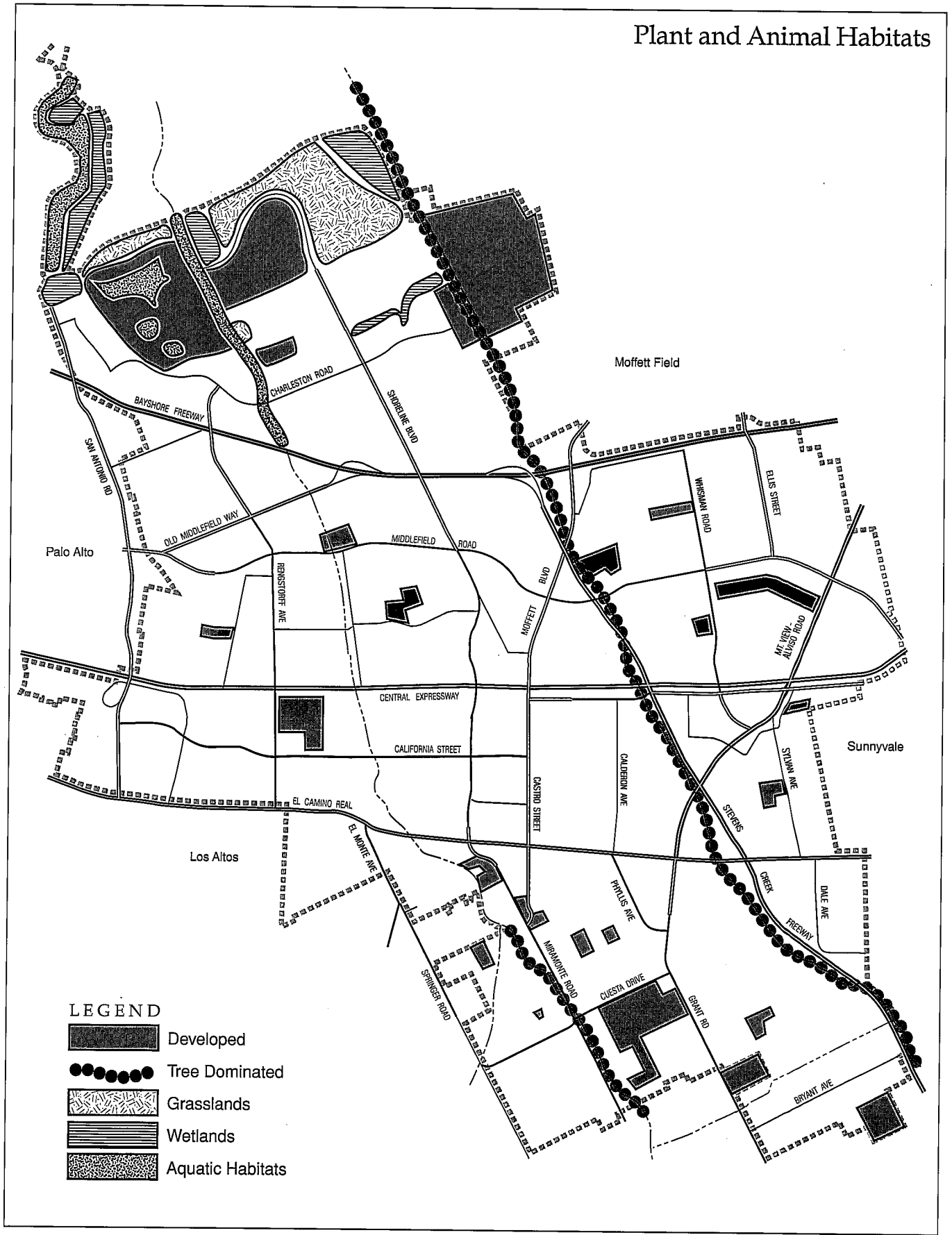


Figure 6. Plant and Animal Habitats.

Wetland habitats, including freshwater and saltwater marshes, are found only at Shoreline. Wetland birds include herons, egrets, ducks, hawks, and burrowing owls. Mammals include shrews, bats, mice, rabbits, raccoons, foxes, and harbor seals. Mountain View's Aquatic Habitats are divided into saltwater and freshwater. Saltwater marshes include the lower reaches of Adobe, Permanente, and Stevens Creeks; a 50-acre saltwater lake in Shoreline; Mountain View and Stevens Creek Tidal Marshes, and Charleston Slough. These areas contain a rich bottom-dwelling community of oysters, mussels, and clams, which are an important source of food for migrating birds. Herons, grebes, ducks, and pelicans fish in this saltwater. Characteristic mammals include jackrabbits, raccoons, ground squirrels, and harbor seals. Freshwater resources include Shoreline's Golf Course lakes, the upper reaches of Permanente and Stevens Creeks, and a variety of smaller retention basins and ditches. Birds include herons, bitterns, and kingfishers. Muskrats, raccoons, and opossums are frequent residents.

GOAL I

Preserve and enhance the diversity of biological resources in Mountain View.

Habitat Restoration. Shoreline at Mountain View is the largest wildlife area in the city. Since 1980, Shoreline's staff has been restoring this one-time landfill to its former capacity to support plant and animal life, placing major emphasis on reintroducing native plants. Shoreline's brand of multi-habitat preservation and restoration has been highly successful and could be applied to other areas in Mountain View. A city-wide habitat restoration program could involve restoring creeks, using native plants in private projects, changing weed control methods to reduce the use of chemical herbicides, eliminating the practice of plowing under meadowlands, and requiring wildlife surveys of vacant lands before the lands are developed.

Policy 25. Protect and restore plant and wildlife habitats.

Action 25.a Prepare and adopt a master plan that establishes appropriate land uses within Shoreline.

Action 25.b Use open space zoning districts and capital projects to preserve and enhance creekside habitats.

Action 25.c Use the City's Landscape Guidelines to require native plants in commercial, industrial, and multiple-family developments.

Action 25.d Prepare and adopt an ordinance limiting plowing under open fields as a way to control weeds and prevent fire.

Burrowing owls—a protected species.

Wildlife. The most interesting and successful wildlife management program in Mountain View is the burrowing owl habitat in Shoreline. Burrowing owls are small birds that live in abandoned ground squirrel burrows along levees and in the grasslands of Shoreline. The City has created several artificial burrows for these owls and enhanced their foraging habitat. Up to 30 burrowing owls live at Shoreline. As many as 65 owls live there in the summer, after the chicks are born. Burrowing owls are declining throughout the west and are a Species of Special Concern in California—a prelude to Endangered Species status. The federal Migratory Bird Treaty Act protects the birds and their nests, but their habitat is not protected. Mountain View is leading the way in preserving the burrowing owls not only by protecting owl habitat, but by creating it.

Mountain View also funds a private nonprofit wildlife rescue agency which collects injured animals, cares for them, and returns them to the wild. Most of these are injured or abandoned birds; but some are small mammals that have been poisoned by eating plants sprayed with chemical herbicides. Several property owners use herbicides to control weeds and prevent fires.

Mountain View has reduced the amount and toxicity of the chemical herbicides it uses on City properties in favor of other ways to control weeds and prevent fires. The City's strategies include allowing native vegetation to develop past the stage at which it is first prone to fire, clearing only the borders of wildlife areas where they touch homes and businesses, checking for wildlife before development, and mowing fields rather than plowing them under.

Policy 26. Protect wildlife from the hazards of urbanization.

Action 26.a Preserve Shoreline's burrowing owl habitat by passing an ordinance designating Shoreline as a burrowing owl preserve.

Action 26.b Require that public and private land owners mitigate for the destruction of habitat used by sensitive species.

Action 26.c Prepare and adopt an ordinance requiring wildlife surveys of open lands before they are developed, managed for fire prevention, or disturbed in any way.

Action 26.d Seek to fund organizations that rehabilitate injured animals and return them to the wild.

Action 26.e Avoid using balloons, especially Mylar balloons, at City-sponsored events because they are a safety hazard and pose a danger to wildlife.

Action 26.f Consult with the salt pond management and local duck hunting clubs to develop strategies that reduce the negative effects that duck hunting has on the public.

Archaeological Resources

The Ohlone tribe of Native Americans moved into the Bay Area around 500 A.D. and eventually occupied much of the central California coast as far east as the Diablo Range. Mountain View is in what were probably the Tamyen and Ramaytush sectors of the Ohlone territory. The Ohlone were a dispersed society of hunters and gatherers who divided themselves among politically autonomous groups, or tribelets, containing an average of 200 members. Spanish mission records and archaeologic data show that in 1770 as many as 1,200 Ohlones lived in what was to become the Mountain View area.

The Ohlone way of life flourished in California until the Spanish mission system arrived in the mid to late 1700s. This system forced a normally scattered population into a central location, where their labor could be exploited. By 1810, the Spanish had completely transformed the Ohlone people from hunters and gatherers to agricultural laborers and artisans. Replacement of the Ohlones' native religion, language, customs, and way of life with those of the Spanish led to a low birth rate, and many children died of European diseases for which they lacked immunity. When control of the missions passed to Mexican civil authorities in 1834, the few remaining Ohlone moved to ranchos and were absorbed into multi-ethnic communities. Today, only about 200 persons of Ohlone descent live in the Bay Area.

Land ownership patterns in California changed profoundly with the shift in control of the missions. The Mexican custom of individuals owning vast land grants replaced the Spanish system of founding presidios, missions, and towns with property held by the crown. One of these Mexican land grants, the 8,877-acre Rancho Pastoria de las Borregas, would become most of what is now Mountain View. The Rancho was granted to Francisco M. Estrada in 1842, and was transferred to his father-in-law Mariano de la Cruz Castro. Castro raised cattle for tallow and hides, the main business in the region.

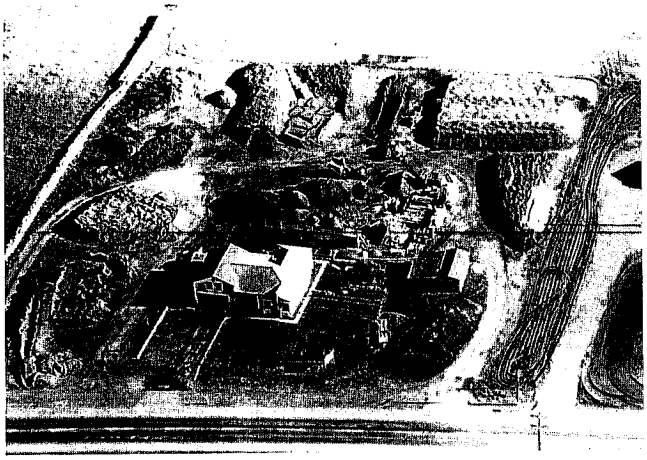
Northern California's population soared when the Gold Rush began in 1848 and the transcontinental railroad was completed in 1869. New agricultural towns grew quickly on the Peninsula and in the Santa Clara Valley to feed the burgeoning cities of San Francisco and Sacramento. After 1875, the success of fruit production and expansion of markets through the railroad transformed Mountain View's economic base from cattle raising to horticulture. Mountain View eventually became known for its production of olives, cherries, prunes, apricots, and chrysanthemums.

Until the 1950s, Mountain View was a small, compact settlement set in acres of orchards and greenhouses. Farming persisted until after World War II, when large numbers of people began moving to the suburbs in search of affordable houses. Since then, Mountain View's farms have been replaced by housing, commercial centers, and industrial campuses. The Santa Clara Valley, once known as the "Valley of Heart's Delight" for its fruit production, is now called "Silicon Valley" for its electronics industry.

GOAL **J** **Identify and preserve the city's archaeological resources.**

Archaeologic Sites. Six formally recorded sites and three unconfirmed shell mounds have been documented in Mountain View. The most important of the archaeological sites was located near what is now Central Expressway and San Antonio Road, and was known as the Mountain View Mound. The site was first excavated by Stanford archaeologists in 1893. The remains of more than 150 Native Americans were recovered from the mound. The mound was estimated to be 500 feet long, 300 feet wide, and 10 feet deep. Archaeologists found a circular house floor almost 20 feet in diameter, needles, barbed fish spears, arrowheads, pestles, pendants, and pipes, many of which dated from 1100 B.C. to 800 B.C. Most of the Mountain View Mound was carved up in the 1940s and marketed as "Indian Mound Top Soil." The commercial use of the mound for topsoil and fill destroyed its archaeological value and, more importantly, its spiritual value as a Native American burial ground.

Policy 27. Improve awareness of the city's archaeological resources.



The Mountain View Mound near San Antonio Road, circa 1940.

Action 27.a Maintain lists, descriptions, and photographic records of archaeological sites.

Action 27.b Develop standard practices or contingency plans for preserving archeological materials that are unearthed during construction.

Energy

Mountain View is in Pacific Gas and Electric's De Anza Division of the Mission Trails Region. PG&E's power comes from a variety of sources including the wind turbines along Altamont Pass, hydroelectric dams throughout the Sierra Nevada and in Oregon, and the Diablo Canyon Nuclear Power Plant in San Luis Obispo. Power is transmitted to Mountain View by high-voltage electric cables running parallel to Stevens Creek. Several large transformers at the Whisman and Mountain View substations then step the electricity down to 120 and 240 volts for local use.

PG&E also supplies the city with natural gas through an underground high-pressure pipe. (See Figure 3, Transmission and Pipe Lines). About 23 percent of the energy PG&E sells through the De Anza division is natural gas. The 1991 demand for natural gas in Mountain View was about 228,000 therms, the standard measurement for natural gas use. Almost 62 percent of this demand is from homes, 34 percent from commercial development, and 4 percent from industry. Mountain View contributes to PG&E's natural gas reserves by collecting methane gas from a closed landfill at Shoreline.

GOAL **K**

Encourage optimal use of available energy resources.

Energy Conservation. Californians have become more energy conscious since the energy crisis of the 1970s. The escalating cost of energy and the ever-decreasing availability of fuel sources have impelled government agencies to conserve energy and look for alternatives to the use of non-renewable resources. Strategies used by the State and local communities include improving the efficiency of transportation systems, replacing fixtures that use a lot of energy with newer and more efficient equipment, and promoting recycling. Many of these strategies are discussed in greater detail in the Circulation Chapter and in other sections of this Chapter.

Policy 28. Promote energy conservation.

Action 28.a Carry out actions in the Circulation Chapter aimed at reducing automobile use and improving the efficiency of the transportation network.

Action 28.b Continue to use Title 24 of the Uniform Building Code to require proper energy conservation for all approved projects.

Action 28.c Develop a plan to manage and conserve energy for all City structures.

Action 28.d Distribute PG&E literature on energy conservation.

Solar Access. Promoting the use of renewable energy sources, those that are not depleted when they are used, is part of Mountain View's overall energy policy. These sources include solar radiation, wind, tidal action, and terrestrial heat. Mountain View does not have access to strong wind and tidal currents, and it can't mine subsurface heat. However, the city's temperate climate does allow the use of solar energy.

Mountain View uses the Site Plan and Architectural Review process to encourage new building projects to consider solar exposure and take advantage of it. Maintaining solar access in new developments allows for the use of solar collectors, which generate energy for water or space heating. Planning for solar access involves the use of appropriate building types, heights and setbacks, land use, landscaping, site planning, and other design factors. For example, a house that uses glass walls to collect heat needs windows that face south for long-term exposure to sunlight.

Policy 29. Encourage active and passive solar energy design in building and site development.

Action 29.a Consider preparing and adopting a solar access ordinance.

Action 29.b Incorporate solar designs into new City facilities.

Action 29.c Use the development review process to inform developers of the advantage of planning for solar access.

Alternative Sources. Mountain View encourages the use and development of alternative energy sources, including cogeneration and landfill gas. Cogeneration creates electricity by harnessing heat energy that would normally be wasted. The waste heat from industrial processes runs a turbine that produces electricity. The electricity can be used on-site or sold to PG&E. Large institutions such as schools and hospitals typically use cogeneration to produce electricity and use the waste heat for space heating.

Landfill gas, mainly methane, is produced when waste decomposes in the City's landfills. Shoreline has more than 200 landfill gas extraction wells, connected by miles of pipeline atop specially designed landfill cells. The gas is processed at one of three energy recovery facilities, designed for maximum air quality protection. PG&E, under contract with the City, separates methane from the recovered landfill gas and sells it to its natural gas customers. The City contracts with another firm to burn landfill gas in two large reciprocating engines, which drive electrical generators and produce over 3,000 kilowatts of energy. In total, the landfill gas recovery system produces enough energy to satisfy all the electrical and natural gas needs of over 2,000 average homes.

Policy 30. Encourage the development and use of alternative energy sources.

Action 30.a Continue to extract methane gas from the sanitary landfill.

Action 30.b Promote energy cogeneration through an awareness program aimed at large companies and institutions.

PUBLIC SAFETY

The Safety Element establishes Policies and Actions to protect the community from risks associated with earthquakes, floods, fires, toxic waste, crime, and other hazards. This section is required to contain maps of known seismic and geological hazards, and emergency evacuation routes. This section is Mountain View's tool for identifying and mapping hazards, and is consulted before land use decisions are made.

Natural Disasters

Mountain View is close to several active earthquake faults. (See Figure 7, Earthquake Faults, and Figure 8, Earthquake Fault Zones.) An earthquake on any of these faults could result in severe ground shaking and seismic settling throughout the San Francisco Bay Area.

Because of Mountain View's location and its loosely compacted soils, ground shaking and seismic settlement are the most destructive earthquake activities in this area. The severity of ground shaking is determined by a quake's magnitude, epicenter, depth of focus, duration,

Earthquake Faults

Earthquake Fault	Distance from Mountain View	Maximum Ground Shaking Intensity
San Andreas	6 miles (west)	Strong to Very Strong
Hayward	10 miles (east)	Strong to Very Strong
Calaveras	15 miles (east)	Weak
Seal Cove-San Gregorio	19 miles (west)	Weak

Figure 7. Earthquake Faults Affecting Mountain View.

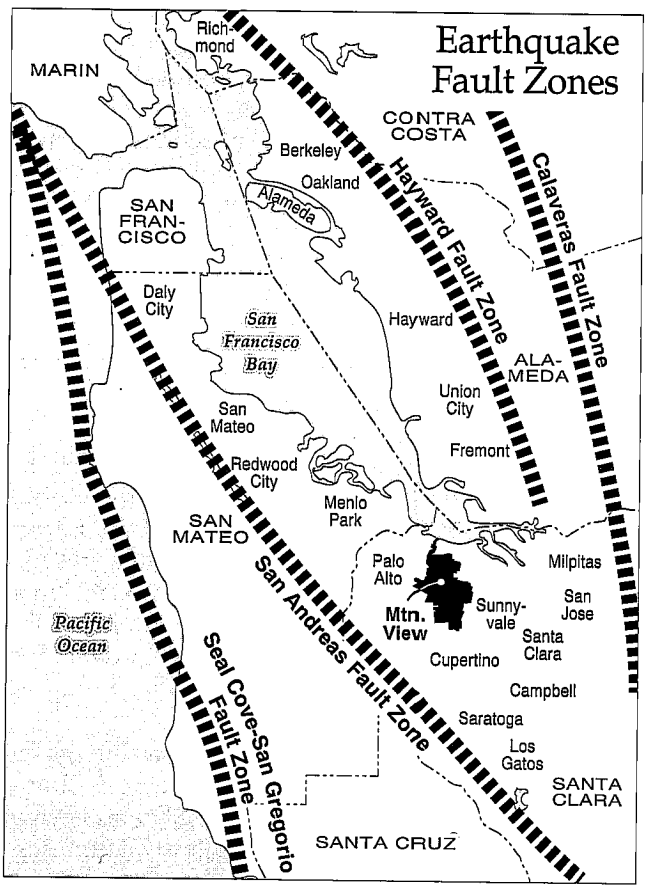


Figure 8. Earthquake Fault Zones.

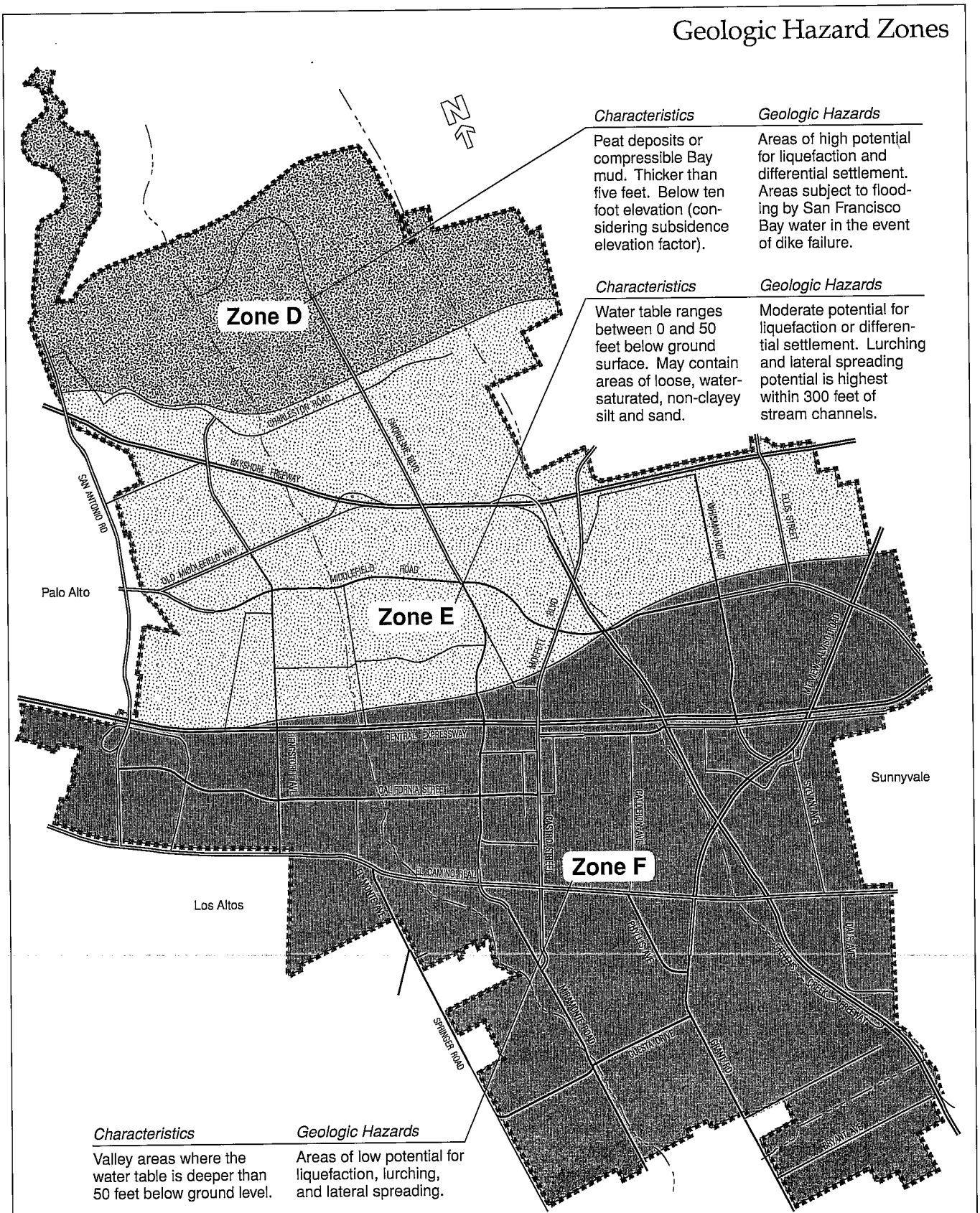


Figure 9. Geologic Hazard Zones.

and local ground water and soil conditions. Ground shaking in Mountain View would range from "strong" in the northern parts of the city to "very strong" in the North Bayshore area, according to a 1987 estimate by the Association of Bay Area Governments.

Seismic settlement is a drop in the ground's elevation when soils compact or liquefy during an earthquake. The California Department of Conservation, Division of Mines and Geology, prepared two planning scenarios that included Mountain View. The first was a scenario for a 7.5 magnitude earthquake on the Hayward Fault, and the second was a scenario for an 8.3 magnitude earthquake on the San Andreas Fault. Both scenarios showed that the potential for liquefaction and seismic settlement in Mountain View would be "moderate to high." (See Figure 9, Geologic Hazard Zones.)

Buildings that collapse during ground shaking cause the vast majority of injuries and deaths, so it is imperative that new buildings be designed to withstand a high level of shaking without collapsing.

Flooding is another natural disaster recognized as a hazard in Mountain View. The average annual rainfall is slightly less than 13 inches, but there have been more than 25 inches in some years. Ninety percent of this rain falls between November and April, sometimes spilling over creek banks and flooding surrounding land. Floods also could be caused by an earthquake strong enough to destroy Stevens Creek Dam and Shoreline's levees, or to create a huge sea wave, called a tsunami, within San Francisco Bay. A few properties in Mountain View could be flooded to a depth of one to three feet during the 100-year Flood, according to the 1988 Flood Insurance Rate Map. The 100-year Flood has a one percent chance of happening in any given year and is used as the standard design flood. Areas with the highest risk of flooding include much of the North Bayshore district, land along the banks of Permanente Creek, and in the northwestern corner of the city around Rengstorff Avenue and Old Middlefield Way. (See Figure 10, Flood Plains.)

Damage from earthquakes and floods can be devastating, but proper planning and preparation can reduce risks and lessen the harmful effects of natural disasters when they happen.

GOAL L

Protect the community from the harmful effects of natural disasters.

Earthquakes. Mountain View's Fire Department has created an Office of Emergency Services to prepare the City's Emergency Preparedness Plan and mobilize responses when disasters occur. The office presents earthquake preparedness information to local businesses, schools, City employees, and neighborhood organizations. It also manages a group of amateur radio operators who will go into action if telephone lines are shut down, and it participates in regional discussions with other cities and the Red Cross to share information and coordinate relief plans. In 1990, OES arranged an amendment to the Zoning Ordinance so that disaster storage containers could be located at large businesses, hospitals, and in schoolyards. This collaboration of public and private activities, drawing upon local and regional preparedness plans, is designed to anticipate problems and to lessen their effects.

Many of the Emergency Preparedness Plan's strategies are carried out in the development of new and remodeled buildings. The City's Building Department reviews development plans to be sure that they comply with the strictest earthquake standards in the latest Uniform Building Codes. These codes promote building safety while protecting historic structures and the housing supply. The Building Department has also identified 16 unreinforced masonry buildings that are of moderate to high risk of collapsing in an earthquake. As of 1992, strategies to require the upgrading of these buildings were being evaluated.

The City also promotes building safety by inspecting rental structures having three or more units for violations of the Housing Safety Codes. About 3,200 housing units are inspected and brought up to code each year. There is more discussion on this subject in the Neighborhood Design section of the Residential Neighborhoods Chapter.

Policy 31. Prepare for the destructive force of earthquakes and attempt to lessen their effects.

Action 31.a Continue programs to educate residents about seismic hazards and about what to do when earthquakes occur.

Action 31.b Develop an ordinance to upgrade unreinforced masonry buildings.

Action 31.c Adopt promptly, modify where necessary, and enforce the latest Uniform Building Code, Uniform Code for Building Conservation, and Historic Building Code.

Action 31.d Continue to update the City's Emergency Preparedness Plan.

Floods. In Mountain View's early years as an agricultural town, people often looked at flooding as an asset because the need for water to irrigate crops outweighed the damage caused by floodwaters. But, as development increased, people became more concerned about the property damage caused by floodwaters. Between 1950

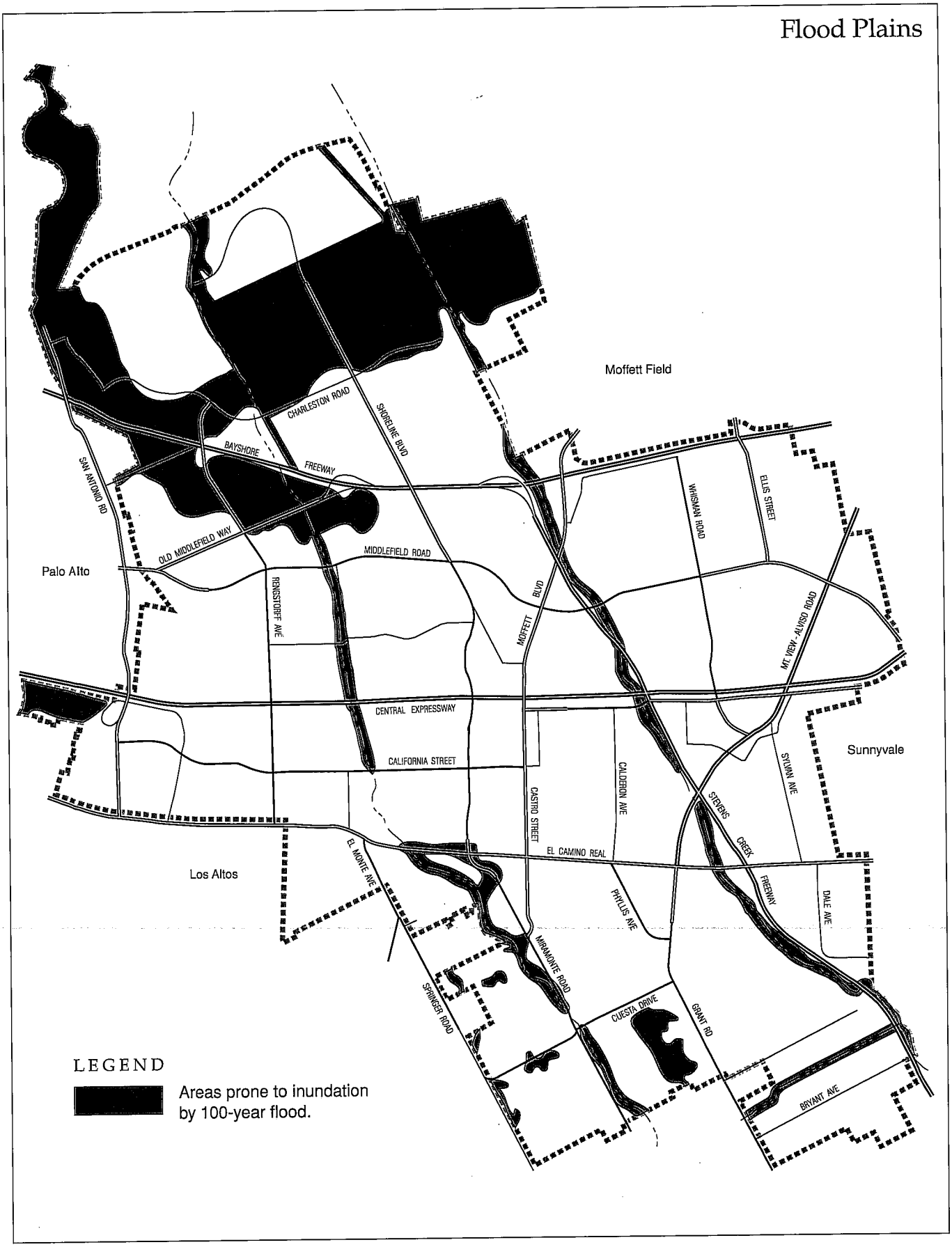


Figure 10. Flood Plains.

and 1970, water retention and diversion facilities were built, including the Stevens Creek Reservoir, the Stevens Creek-Permanente Cross Channel, Shoreline's levees, and much of the City's storm drainage system. These significantly reduced the amount of land threatened by floods.

Mountain View's 1979 Drainage and Flood Control Ordinance further reduces risks associated with floods. It requires that the lowest habitable floor is above flood elevation, that new construction is anchored so that it will not float, that building materials are resistant to flood damage, that utilities are designed to withstand floods, and that materials and equipment are properly stored. These standards apply to areas of special flood hazards designated by the Federal Insurance Administration and illustrated on the city's Flood Insurance Rate Map. The City imposes special conditions on appropriate projects to enforce the ordinance as part of the building development process.

Policy 32. Protect residents and their property from flood hazards.

Action 32.a Work with the Federal Emergency Management Agency and the Santa Clara Valley Water District to update the city's Flood Insurance Rate Maps.

Action 32.b Distribute flood maps to educate residents and developers about flood hazards in the community.

Action 32.c Enforce the City's Drainage and Flood Control Ordinance.

Action 32.d Coordinate with the Santa Clara Valley Water District to maintain and improve flood control programs and facilities.

Action 32.e Analyze the City's storm drain system for possible inadequacies and, if necessary, develop Capital Improvement Programs to improve the system.

Evacuation Routes. Evacuation routes can be airports, roadways, waterways, or trails that allow for the orderly removal of people and possessions from an endangered area. California law requires that each city discuss and map its emergency evacuation routes in the Safety Element of its general plan.

Moffett Naval Air Station was established in 1931 as a home port for the Navy's dirigible program, and is now the center of antisubmarine patrol in the Pacific Ocean. Moffett plays a key role in local disaster planning although there are no formal agreements between it and local or State emergency response agencies. Moffett provided an indispensable service after the magnitude 7.1 Loma Prieta Earthquake in October, 1989, when it coordinated airfield services for disaster relief materials. As of 1992, the federal government has decided to close the Naval Air Station at Moffett Field, but will continue to use the airfield for NASA and other federal agencies.

Roadways are the fastest way to move people from an endangered area. In Mountain View, El Camino Real and Central Expressway are the primary east-west evacuation corridors. These arterials are accessible to most of the city, especially to neighborhoods in central and southern Mountain View. El Camino is more structurally sound than Central Expressway because it has fewer overpasses. Primary north-south evacuation routes are Grant Road and State Route 237 on the eastern side of the city, Miramonte Avenue and Shoreline Boulevard in the central section, and San Antonio Road on the west. These are all surface streets with very few elevated sections or overpasses. The number of lanes and average widths of these roads and their evacuation routes are presented in Figure 11 below.

U.S. Highway 101, the Bayshore Freeway, runs through Mountain View from east to west but has many elevated sections and overpasses that could collapse in an earthquake. It is also subject to flooding in the 100-year Flood. State Route 85—the Stevens Creek Freeway—also runs north and south through Mountain View, but like the Bayshore Freeway, is at risk of flooding and of ground failure in an earthquake. For these reasons, U.S. 101 and State Route 85 are not part of Mountain View's evacuation route system. (See Figure 12, Evacuation Routes Map.)

Policy 33. Plan for the orderly evacuation of people and their possessions.

Action 33.a Involve Moffett Field in the City's emergency preparedness planning.

Action 33.b Train and equip emergency personnel in evacuation procedures.

Action 33.c Publicize the City's evacuation routes and other aspects of its Emergency Preparedness Plan.

Evacuation Routes

Roadway	Number of Lanes	Average Width
El Camino Real	6	100 ft.
Central Expressway	4	100 ft.
Grant Road	4	70 ft.
State Route 237	4	80 ft.
Miramonte Avenue	4	65 ft.
Shoreline Boulevard	4	80 ft.
San Antonio Road	6	100 ft.

Figure 11. Evacuation Routes List.

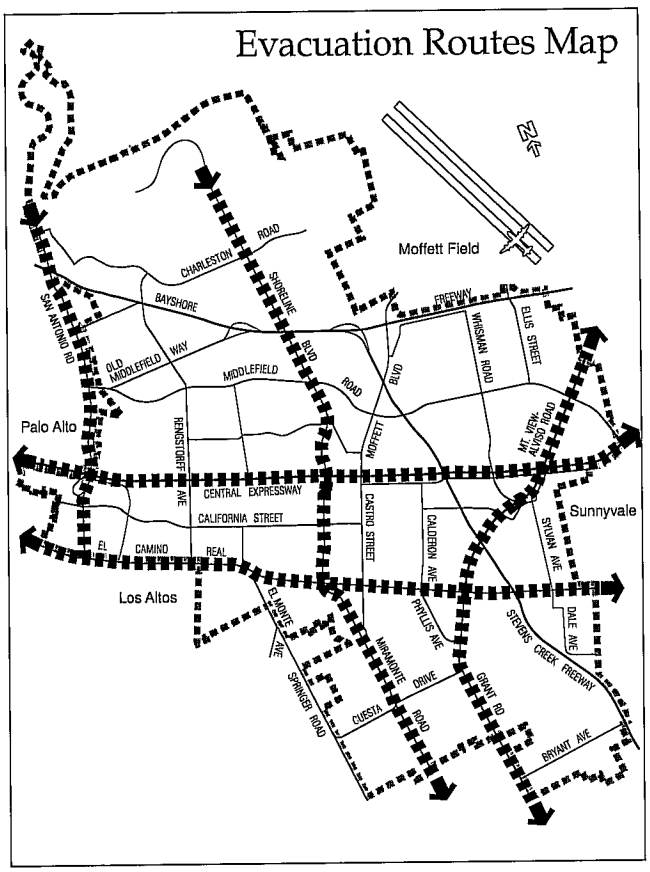


Figure 12. Evacuation Routes Map.

Fire

The mission of Mountain View's Fire Department is to prevent deaths, injuries, property losses, and environmental damages from fire, natural disasters, and uncontrolled release of toxic substances. The Fire Department responds to requests for fire protection services from four fire stations located throughout the city. These services commonly involve fire prevention, fire suppression, emergency medical care, and hazardous materials code enforcement and response.

Fire Department Service Calls

The Mountain View Fire Department responded to 4,198 service requests during the 1990-1991 fiscal year. These calls consisted of 12 chemical emergencies; 136 dangerous situations, such as downed power lines and gas leaks; 248 fires, 69 of which were residential; 369 non-emergency calls, such as trapped pets and domestic assistance; 379 false alarms, 674 good intent calls, in which someone reported what looked like an emergency but turned out to be a controlled situation; 2,377 rescue calls, and three calls for other services. About 57 percent of service requests were medical related.

Mountain View's 1969 Fire Protection Master Plan allocates these services cost-effectively. One of its underlying philosophies is that automatic fire protection along with fire prevention activities can achieve a higher level of fire safety while reducing the cost. Fire protection that only reacts to fires in buildings with minimal Building and Fire Code requirements produces excessive fire losses. Fire suppression services are increasingly expensive to provide. The Master Plan specifies a series of fire protection goals, objectives, and programs to guide code development and enforcement, and forms the basis for a management-by-results system.

GOAL **M**

Protect residents and the environment from fire and hazardous materials.

Fire Prevention. The Uniform Fire Code establishes maximum risk levels associated with fire hazards and identifies resources needed to deal with them. The Code emphasizes fire prevention, including the use of building materials that do not burn, automatic alarms and sprinkler systems, a thorough building inspection program, and evaluation of building plans as part of the Site Plan and Architectural Review process. Mountain View has added requirements for automatic sprinklers in new buildings of 5,000 square feet or larger. This balances the responsibility for fire protection between government and the property owner. The Department teaches a school safety program for students in kindergarten through the fifth grade, runs a juvenile fire-setters counseling program, gives seminars to private industry, and conducts general community outreach. The fire prevention program has become so successful that Mountain View has an insurance rating of "two" from the Insurance Service Organization of California. That scale runs from one to 10, with "one" the best.

Policy 34. Minimize property damage, injuries, and loss of life due to fire.

Firefighters practice their skills.

Action 34.a Maintain a continuing program of inspections and site plan review.

Action 34.b Improve the effectiveness of fire prevention programs through continued public education and code enforcement.

Action 34.c Use educational outreach programs to create a community consciousness of the need to improve fire safety.

Action 34.d Emphasize private responsibilities for fire prevention and protection in community awareness programs.

Action 34.e Adopt and enforce proactive fire and life-safety codes that require property owners to share in the responsibility for fire protection services.

Action 34.f Review development plans to be sure there is adequate access for emergency vehicles.

Action 34.g Develop weed abatement programs that reduce the risk of fire while maintaining habitat value for native plants and animals.

Fire Suppression. Levels of "acceptable risk" are defined in the Fire Protection Master Plan to help the Fire Department find the number of firefighters and the amount of equipment it needs to meet its fire safety responsibilities. An acceptable risk is a tolerable exposure to a hazard, given the cost of protective services. Different levels of acceptable risk may be assigned according to the potential danger and the importance of threatened areas. For example, the levels may range from "near zero" for schools and hospitals to "moderate" for open space and low-intensity warehouses. The City has located four fire stations so that firefighters can usually arrive at the scene of an emergency in less than four minutes. This average response time was improved in 1989 with the installation of a computer-aided dispatch system which constantly monitors the status and location of emergency personnel. In 1990, the City further enhanced its efficiency in responding to emergencies by replacing its entire fleet of fire trucks, adding a new ladder truck, and controlling signal lights at street intersections. For fires that exceed local capability, Mountain View is a member of the county-wide and State-wide mutual aid programs and automatically shares fire suppression responsibilities with the Palo Alto Fire Department.

Policy 35. Maintain personnel and equipment necessary to extinguish fires.

Action 35.a Continue to evaluate and update the Fire Protection Master plan. That plan establishes publicly defined acceptable risks.

Action 35.b Require that buildings in the city provide specialized fire protection systems that reduce the risk of fire to acceptable standards.

Action 35.c Maintain enough firefighters per shift to meet publicly accepted levels of risk and response expectations.

Action 35.d Continue to participate in county-wide and State-wide mutual aid and automatic aid programs with neighboring cities.

Action 35.e Continue to cooperate with neighboring cities to improve efficiency and cost savings in support services.

Action 35.f Maintain a water supply and water pressure than can meet potential firefighting demands.

Emergency Medical Care. The Emergency Communications Division of the Fire Department is responsible for answering all police, fire, and medical aid calls, including 911 telephone service for people with hearing and speech impairment. During fiscal year 1990-91, Communications dispatched 2,392 calls for emergency medical aid and rescue services. Firefighters are often the first to respond to medical emergencies involving heart attacks, falls, traffic accidents, diabetic and allergic reactions, drug overdoses, and many others. All firefighters are trained to the level of an Emergency Medical Technician I and can provide basic medical care to stabilize patients until paramedics arrive. In March 1990, firefighters began carrying automatic heart defibrillators which dramatically increase the survival rate for heart attack victims. All Mountain View firefighters are trained in emergency medical defibrillation.

Policy 36. Respond quickly and competently to rescue and medical emergencies.

Action 36.a Maintain certification of firefighters as Emergency Medical Technicians.

Action 36.b Provide emergency medical defibrillation for people suffering cardiac arrest.

Action 36.c Equip firefighters with state-of-the-art medical and rescue equipment as needed to meet demand for services.

Hazardous Materials. California's economic well-being and quality of life depend, in many ways, on the production and use of manufactured goods. However, manufacturing often requires large volumes of chemicals and generates hazardous waste. Hazardous waste ranges from familiar substances, such as solvents and waste oil,

to sophisticated compounds such as polychlorinated biphenyls and dioxins. More than 10 million tons of hazardous waste are generated in California each year.

Mountain View adopted a Hazardous Materials Storage Ordinance in 1983 to evaluate and manage local chemical and hazardous waste issues properly. The ordinance requires users of hazardous chemicals to get a permit from the City. To get this permit, users must show that their storage, handling, and use of hazardous materials is up to the City Code.

The California Legislature passed AB 2984 in 1986 to manage hazardous materials throughout the state. The law requires each county to develop a Hazardous Waste Management Plan for review and approval by the Department of Health Services. Another bill, SB 477, requires that within 180 days of the plan's approval, cities must either adopt the County plan by reference in their general plans, adopt the plan by local ordinance, or adopt their own plan. Since Mountain View has long recognized the need to establish proper chemical management procedures and has consistently endorsed the County's hazardous waste management efforts, the City is adopting the County Hazardous Waste Management Plan by reference.

Mountain View's Fire Department has created a Hazardous Materials Code Enforcement Division to help prevent the uncontrolled release of toxic substances into the environment, and a Hazardous Materials Response Team to contend with those that do occur. The Code Enforcement Division is responsible for enforcing the City's Hazardous Materials Storage Ordinance, processing hazardous materials use and storage permits, enforcing the Toxic Gas Ordinance, conducting inspections of high-hazard toxic materials facilities, and educating local businesses on proper storage and handling of hazardous materials. The Response Team responds to uncontrolled releases, identifies the category of chemicals involved, contains the spill if possible, oversees cleanup activities, and makes sure that the site is safe to be occupied again.

Policy 37. **Prevent injuries and environmental contamination due to the uncontrolled release of hazardous materials.**

Action 37.a Support Santa Clara County in carrying out and enforcing the Hazardous Waste Management Plan.

Action 37.b Revise the Zoning Ordinance as required to comply with the Hazardous Waste Management Plan.

Action 37.c Continue to update and enforce local ordinances regulating the permitted use and storage of hazardous gases, liquids, and solids.

Action 37.d Strengthen construction requirements where hazardous materials are stored or used.

Action 37.e Continue to make sure that underground storage tanks containing hazardous materials are properly installed, used, and removed.

Action 37.f Provide continuing training for hazardous materials enforcement and response personnel.

Action 37.g Conduct inspections of all industrial facilities using or storing hazardous materials.

Clean-up Sites. Mountain View has some large industrial sites and small properties that have been contaminated by toxic materials. The City's environmental assessment of new development requires soil samples if contamination is suspected. Contamination that exceeds State standards requires cleanup before development or reuse of the site. Cleanup is a long and complicated process monitored through the State Department of Health Services. On small residential infill sites, contamination often has been caused by the property owners' use of pesticides for small personal orchards or gardens. The City is working with the Department of Health Services to find simplified procedures for these smaller sites.

Policy 38. **Ensure that hazardous materials are cleaned up before a property is developed or redeveloped.**

Action 38.a Require an assessment of the past use of hazardous materials on proposed development sites.

Action 38.b Require that soils are analyzed for all new residential developments where there is a history of industry or agricultural land use.

Action 38.c Work with the State Department of Health Services to establish simplified procedures for small residential projects with limited contamination.

Police

Police officers are among the most visible representatives of City government and largely influence public attitude toward the quality of City services. They are responsible for maintaining the quality of life by protect-

ing people and property, promoting community order through crime prevention and educational programs, apprehending and prosecuting criminals, and regulating non-criminal activities.

GOAL **N**

Reduce criminal activity and instill a feeling of safety and security in the community.

Community Services. Mountain View's neighborhoods, including its industrial and military areas, have their own subcultures, demographic characteristics, and individual identities. Their combined energies give character to the city, but they are not the only elements that do. A viable city is also marked by the interaction of residents, businesses, civic organizations, churches, schools, and government on issues that confront the entire community. The Police Department is an integral member of this partnership, and provides police services to each of these communities according to their particular needs.

Much of today's police work involves responding to various social problems including domestic disputes, alcoholism, and homelessness. In fact, 80 percent of police calls are requests for service, rather than responses to crime. Often these calls require police to help those who cannot care for themselves such as children, the elderly, and those with physical or mental handicaps. In these situations, police officers provide counseling and crisis intervention, and act as liaison to various social service agencies. When officers provide these community-oriented services, they clearly illustrate the support and service role of the Mountain View Police Department.

Policy 39. Provide superior community-oriented services.

Action 39.a Develop a customer orientation in providing services to the community.

Action 39.b Continue programs such as "Neighborhood Watch" and "Ride Along," which reflect community values, and increase residents' involvement in, and ownership of, police operations.

Action 39.c Direct services and outreach programs toward youths in the community.

Action 39.d Act as liaison to social service agencies that give support to physically or mentally disadvantaged persons.

Action 39.e Assist in preparing and carrying out Emergency Preparedness Plans.

Community Order. It is difficult to measure crime's effect on society, but clearly crime is a burden. Crime affects people in many different ways. People who fear crime cannot move around as freely. Crime victims suffer physically and emotionally and are less productive at work. Crime is extremely expensive, causing insurance cost to rise, making consumer goods more expensive, and making the public pay for maintaining public police departments and jails, hiring private security, and upholding the entire judicial system.

Police Service Calls

In 1990, the Police Department responded to approximately 42,750 incidents, wrote about 33,400 police reports, and handed out 21,200 traffic and parking citations. The Department investigated about 250 violent crimes and roughly 7,900 property crimes and made 4,670 arrests.

There are many different causes of crime, requiring many different approaches. Continuing crime prevention programs in Mountain View include Neighborhood Watch, educational outreach, juvenile counseling services, referral services, mediation for troubled youths, and data tracking. Use of new data systems help the Mountain View police identify crime areas, traffic problems, service requirements, and many other neighborhood characteristics. The Department assigns officers and provides services to maintain community order and public safety based on this information.

Policy 40. Provide services and personnel necessary to maintain community order and public safety.

Action 40.a Maintain a force sufficiently staffed and deployed to sustain a four-minute maximum emergency response 70 percent of the time.

Action 40.b Continue programs such as "Neighborhood Watch" and "Merchant Alert," which improve communication with neighborhood organizations and community merchants.

Action 40.c Identify changes to current laws and ordinances or create new ones to help carry out crime prevention strategies.

Action 40.d Review and modify proposed residential developments to create a sense of ownership and belonging among the residents.

Action 40.e Require approaches to crime prevention to be designed into new buildings.

NOISE

The Noise Element's Policies and Actions are aimed at controlling and diminishing environmental noise and at protecting residents from being exposed to too much noise. The State requires that the Noise Element must provide information on the noise environment, develop strategies for reducing excessive noise exposure, protect regions of the city that are not troubled by noise and uses that are "noise sensitive," and use the Ldn noise contours to comply with the State Noise Insulation Standards.

Sound is a pressure variation that a human ear can detect. Sound pressure can vary both in intensity, or loudness, and in the frequency of the pressure changes, or tone. Noise is unwanted sound, so the difference between sound and noise is frequently subjective. For instance, the sound of a P-3 Orion aircraft may be music to its Navy pilot, but noise to many people who live in its flight path.

Sound intensity is measured on a decibel scale. Sounds as faint as zero decibels are barely audible, and then only when there are no other louder sounds. Ordinary conversation is about 60 decibels. People who live in Mountain View are most often exposed to sounds ranging from 30 to 85 decibels. People can tolerate some noise, but brief exposure to intense sounds of 120 to 140 decibels can threaten physical or psychological well-being. (See Figure 13, Typical Noise Levels.)

The City has established noise guidelines for each of its land use categories and has assigned appropriate levels for indoor and outdoor activities. (See Figure 14, Noise Acceptability Guidelines). The guidelines are based on sound levels that do not interfere with people's activities or threaten their well-being. For example, noise levels measured outdoors at a public pool are normally acceptable up to 55 decibels; however, the pool's interior administrative offices should be quieter and not exceed 45 decibels. Noise levels higher than these standards may require methods of lessening the effect of the noise, such as perimeter sound walls or double-paned windows.

Mountain View's noise guidelines are expressed in terms of "dB(A)Ldn." This is a measurement of the intensity of sound (dB), weighted by frequency to correspond to the way humans perceive sound (A), and averaged over the period during which the measurement was taken; Ld means daytime measurements, and Ln means nighttime measurements. The dB(A)Ldn measurement assigns an automatic 10-decibel penalty to nighttime measurements, so there is no need to have separate standards for day and night. The dB(A)Ldn measurement is very similar to the community noise equivalent level (CNEL) measurement system used in some building code requirements. In both systems, the energy of sound is measured

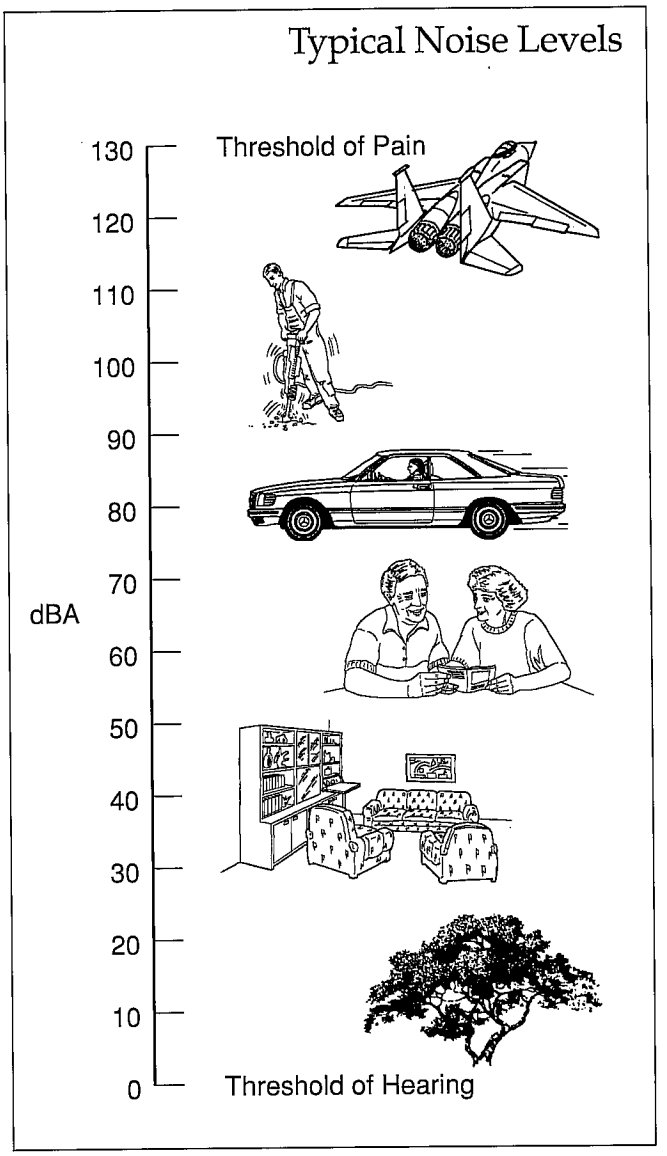


Figure 13. Typical Noise Levels.

on a logarithmic scale, meaning that an increase of 10 decibels equals a doubling of noise levels.

Noise Source

Noise is often divided between stationary and motor vehicle sources. Both contribute to the city's noise levels, but in different ways. Stationary sources tend to be associated with fixed machinery in industrial districts but also include schools, athletic fields, day care centers, and music concerts. Motor vehicle noise is most often associated with rush-hour traffic, but also includes airplanes and freight trains. Mountain View differentiates between stationary and motor vehicle noise and has developed separate strategies to reduce their effects. A Noise Contour Map showing noise levels attributed to both of these sources is included as Figure 15, page 139.

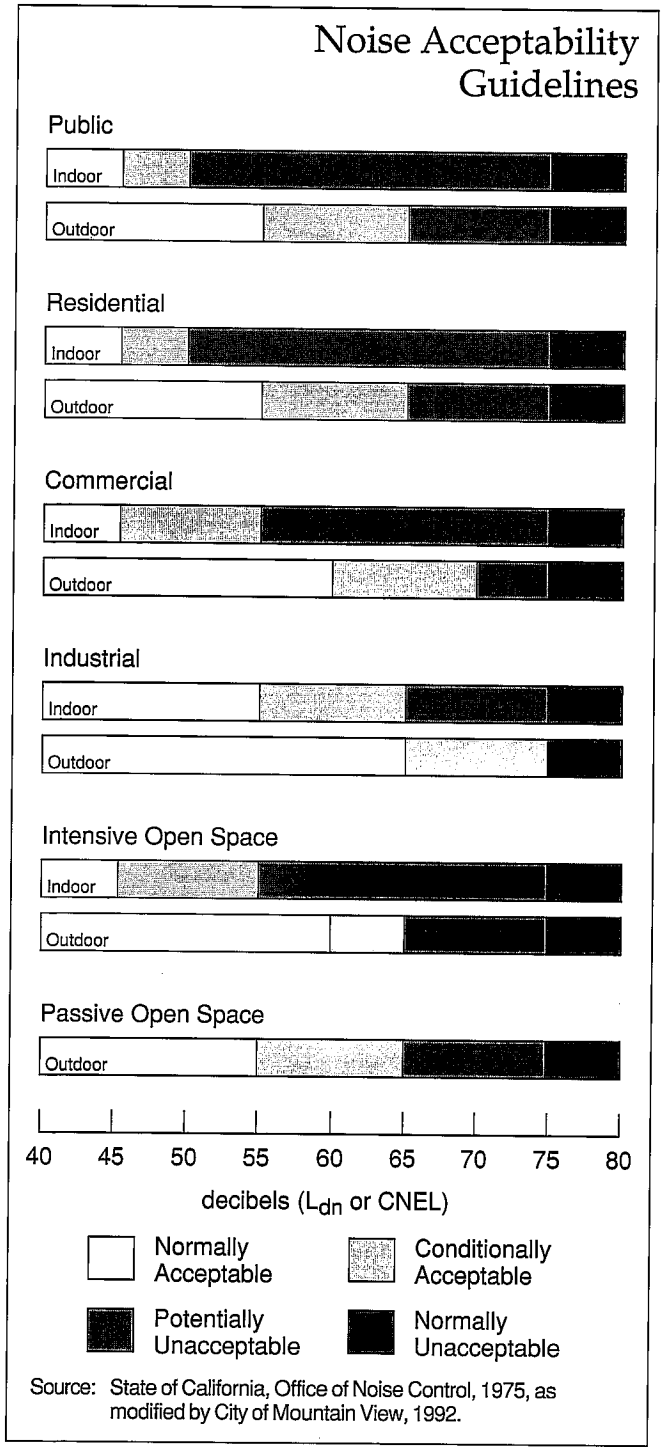


Figure 14. Noise Acceptability Guidelines.

GOAL

O

Reduce noise levels at the source.

Stationary Noise Sources. Fixed equipment such as air conditioners, pool filters, compressors, and industrial machinery can become noisy distractions to people living near them. These noise sources tend to be intermittent, but can occur at all hours of the day and night. The City's noise thresholds are designed to prevent these situations by establishing measurable criteria for architects and builders that guide them in planning the site and choosing building materials. Enforcement of the thresholds is built into both the environmental review process, using the California Environmental Quality Act and the development review process. In both cases, City staff reviews development applications and requires proper site design and construction methods to keep exterior noise levels to a minimum and prevent the transmission of noise from outdoor sources to indoor receptors.

The City has also enacted a Stationary Equipment Noise Ordinance that restricts fixed equipment from exceeding 55 decibels when measured at any location on a neighboring residential property. Any plans submitted for a building permit must have documentation that proposed equipment meets this standard.

Policy 41. Restrict noise levels coming from stationary sources.

Action 41.a Maintain noise thresholds for each land use category.

Action 41.b Use CEQA and the development review processes to restrict new development from exceeding its noise threshold.

Action 41.c Enforce the City's Stationary Equipment Noise Ordinance.

Action 41.d Encourage NASA/Ames Research Center to reduce and control noise produced by its wind tunnels.

Motor Vehicle Noise. In 1990, noise levels throughout the city were calculated according to the Ldn noise measurement system. (See Figure 15, Noise Contour Map.) As in most cities, vehicles on freeways and expressways were found to be the primary noise sources in Mountain View. Noise levels of 72 to 76 decibels were measured on Highway 101, 69 to 74 decibels on Route 85, 65 to 74 decibels on Route 237, and 64 to 70 decibels on Central Expressway. High levels of noise on these freeways and expressways is generated by high levels of traffic. Some of the noise on Central Expressway is caused by the more than 50 commuter trains and freight trains that travel through Mountain View every day. There is more information on this topic in the Circulation Chapter.

State and federal legislation set individual vehicle noise standards. Cities can enforce these standards, but they cannot establish stricter standards. Cities can only prohibit engines without suitable mufflers and sound-am-

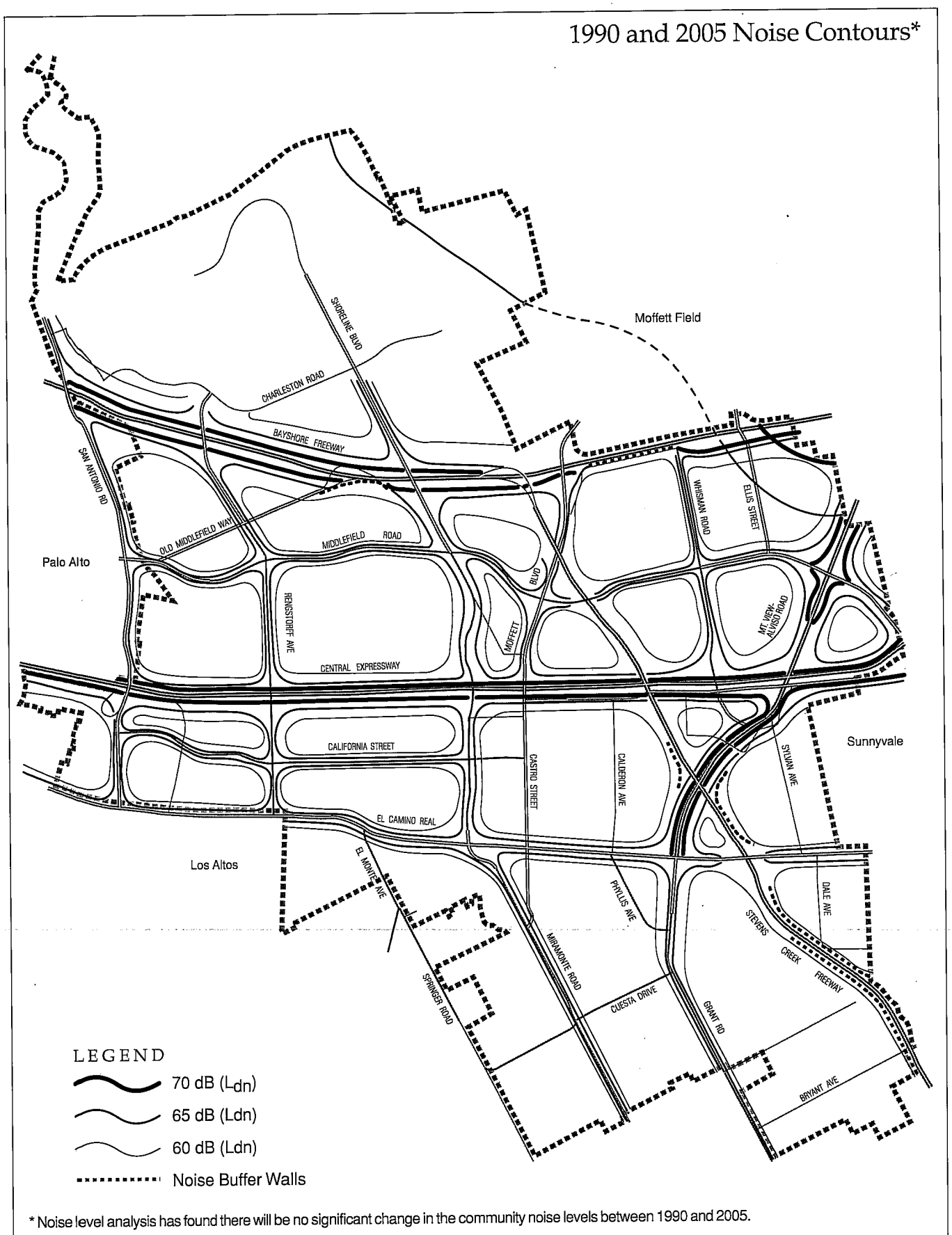
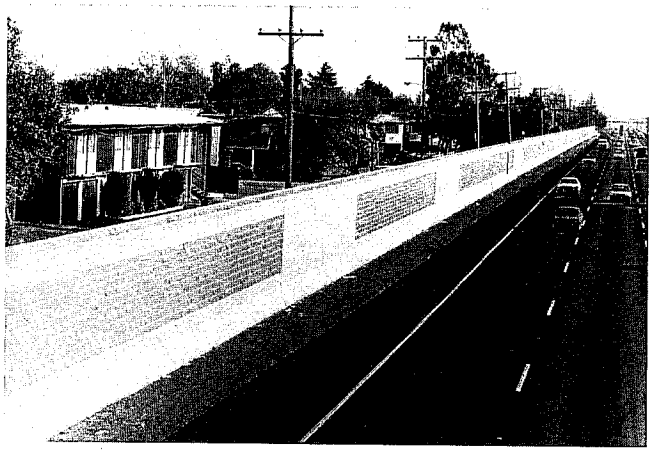


Figure 15. Noise Contours, 1990 and 2005.



Sound walls protect residential areas from noise.

plifying equipment such as speakers, horns, and sirens. Mountain View restricts vehicles equipped with sound amplifying equipment in the City Code and vehicles with illegal mufflers based on the State Vehicle Code. The City supports State and federal legislation to reduce motor vehicle noise.

Cities can also control motor vehicle noise indirectly by focusing on the path and receiver of noise. For example, the City plans to use traffic management techniques in the Old Mountain View neighborhood to redirect cars away from local streets to larger arterials. The City also worked with the State and the County Transit Authority to install sound walls between freeways and residential neighborhoods. The sound walls were funded by the "Measure A" half-cent sales tax initiative, approved by Santa Clara County voters in 1984. There is a complete description of sound walls, with Actions addressing their use, in the "Design and Environmental Effects of Transportation" section of the Circulation Chapter.

Policy 42. Reduce the effects of vehicular noise.

Action 42.a Identify roadways that contribute to high noise levels on neighboring properties and lessen these effects with land use plans and new developments.

Action 42.b Use traffic management techniques, such as rerouting traffic out of residential neighborhoods, lowering speed limits, and reducing the number of stopping points.

Action 42.c Support State and federal legislation regulating noise produced by motor vehicles.

Action 42.d Continue to enforce State muffler and exhaust laws.

Action 42.e Continue to work with Moffett Field and local airport officials to reduce aircraft noise further.

Action 42.f Seek to reduce the effects of the noise from commuter and freight trains that travel through Mountain View.

Transmission and Reception

There are three ways to regulate noise. The first reduces noise at the source. Noise reduction strategies, discussed earlier in the Plan, are generally the most effective for an entire community. The second obstructs the path of transmission of noise. The third insulates or moves the person who hears the noise. These last two methods can be very beneficial in limiting the area affected by unavoidable noise sources.

GOAL **P** **Protect people from the intrusion of noise.**

Noise Path. Cities can use sound barriers to control and interrupt the path of noise from source to receiver. A noise barrier can be any solid structure high and dense enough to reflect, rather than transmit, sound waves. Sound barriers often include masonry walls, earth berms, natural topographic features, and out-buildings such as garages and sheds. Combining one or more of these barriers with trees and other landscaping is probably the most effective type of sound barrier. Landscaping is a pleasing visual screen which softens the appearance of sound barriers and reduces the perception of noise by preventing people from seeing the source, but landscaping alone does not significantly reduce the amount of noise.

Noise levels also can be reduced through proper site planning and architectural design. For instance, residential buildings can be placed on the site so that a corner, rather than a flat wall, faces the noise source. This helps disperse sound waves and lessen their effect. Similarly, pools, play areas, parking lots, and other noise locations should not be enclosed by residential buildings, which trap the noise and amplify its effect.

Policy 43. Control the path of noise from source to receiver.

Action 43.a Use noise barriers such as sound walls, berms, and garages to interrupt the path of noise from roadways and other sources.

Action 43.b Use the development review process to place new buildings in a way that reduces noise levels.

Action 43.c Allow Planned Unit Developments where buildings are clustered and the resulting open space is used to distance residences from the noise source.

Action 43.d Continue to enforce Title 24 of the California Administrative Code noise insulation requirements for new or significantly remodeled structures.

Noise Receiver. Sound is what humans perceive it to be, no matter how sound levels are mechanically measured and weighted. Human psychology and a listener's experiences affect how people hear sound. People can get used to fairly loud sounds, especially if the sounds are regular and steady, but can be disturbed by an unusual sound, even a fairly quiet one, such as a car backfiring on the street. Perception of noise is also affected by how long a person listens to it. Schools, convalescent hospitals, and other land uses with fixed populations are often more sensitive to the noise environment and require special consideration. These projects are typically approved through the Conditional Use Permit process, which requires the developer to take special care in their design and construction.

Policy 44. Reduce the harmful effects of noise on people.

Action 44.a Identify sensitive noise receptors in the community.

Action 44.b Use zoning to separate noise-sensitive land uses from noise sources.

Action 44.c Respond to noise complaints by monitoring the source, suggesting noise mitigation measures, and using code enforcement options when necessary.

EPILOGUE

The 1992 General Plan is the result of a process designed to respond to the concerns and visions of the community. This process identified important community issues, analyzed current and future trends affecting these topics, and developed Goals, Policies, and Actions to guide future decisions. The community has been involved at every step of the process. Over 600 individuals from the community participated in community surveys, the issues workshop, informal public forums, and formal public hearings. Staff from every City department, particularly the Advance Planning staff, helped write the background reports and draft text of the General Plan. Their work was assisted by a team of consultants that provided technical analysis and advice throughout the process.

The Environmental Planning Commission spent three years developing the General Plan. It evaluated the 1982 Plan to find how it influenced today's Mountain View, and how that Plan needed to be changed to reflect current community ideals. The Planning Commission studied each technical background report and, beginning with staff's draft of the document, sculpted the text and each Goal, Policy, and Action in this 1992 General Plan.

The City Council reviewed and approved the progress on the General Plan at several stages of the process. The Council relied on the Planning Commission to conduct the detailed review of information and to develop the basic programs for dealing with the General Plan issues. The Council then reviewed the Commission draft document, modified it where appropriate, and adopted the General Plan as the official planning policy of the City.

The General Plan is not a static document. It is designed to be reviewed regularly to determine how it is being carried out and whether the Plan continues to reflect the community's consensus for the future. Changes will be made to the document to maintain its accuracy and usefulness as a policy guide. These changes will need to maintain the standards of comprehensiveness, consistency, and long-range vision of the current Plan. By regularly reviewing the Plan and by evaluating changes by the same standard of completeness as was used in creating this document, the General Plan will be a dynamic and reliable guide for Mountain View's future. The community at large will continue to be a vital part of this ongoing process of building on the past and aspiring to the future.

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City Attorney

Public Works

Finance

Fire

Police

General Services

Utilities

Library

Community Services